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Medical Schools in Western Europe

ARTHUR C. BACHMEYER

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Medical Schools in Western Europe

ARTHUR C. BACHMEYER

THE AWARD of a fellowship by the World Health Organization provided the means and opportunity for a three-month tour of England, Scotland, Sweden, Norway, Denmark, the Netherlands and Belgium during the spring and early summer of 1950 for the purpose of studying the programs in medical education in the colleges of those countries. The factual data, the observations and comments that are presented herein are the result of visits made to the schools and discussions held with college authorities (rectors, deans, secretaries), faculty members, students and recent graduates, as well as with various governmental officers and other informed individuals. Reports, college announcements (catalogues and prospectuses) and other published and unpublished material have been used.

The report primarily covers only those medical schools which were visited, for the time allotted by the fellowship did not permit visits to all the schools in each country. This was particularly true of those in the United Kingdom.

Because of the extent and complexity of the programs in medical education, and so that the report may proceed in an orderly manner, the material is presented under the following headings:

1. Organization and Administration,
2. Facilities,
3. Finances,
4. Faculty,
5. Students,
6. Curriculum and Teaching Methods,
7. Graduate Education and Training,
8. Postgraduate Training,
9. Affiliated Hospitals,
10. Alumni Organizations,
11. Research,
12. Future Plans for Development.

England

ORGANIZATION AND ADMINISTRATION

Eight of the 22 medical schools in England were visited: Manchester, Oxford and six of the 12 in the County of London. Though there are variations in the organization of the latter, in the main they conform to a general pattern; collectively they form the medical faculty of the University of London. Each, however, is separately incorporated as an educational institution, having a governing body distinct from that of the university.

UNIVERSITY OF LONDON

The University of London is unique among institutions of higher learning. When it was created in 1836, it was in fact no more than an examining board entitled to grant degrees. Teaching functions were added in

1898. It was reconstituted in 1900 and again in 1929. The teaching body of the university now consists of: (1) university departments administered directly by the university senate, (2) schools of the university which are public educational institutions within the County of London, and (3) other institutions having "recognized" teachers who form the only link between the institution and the university. In this latter instance, the university regards the student as working under the recognized teacher rather than at the institution. The 12 medical schools fall into the second category.

The university court*, consisting of 16 members, is the major governing body though it does not control academic affairs. The court controls the finances of the institution (both capital and operating), represents the university in all negotiations for grants from public bodies, and determines the allocation of all funds at the disposal of the university. No university body or school of the university may (1) apply for or receive any money from a public body, (2) make any public appeal for money, or (3) accept any benefaction which, in the opinion of the court, is or will become onerous to the finances of the university without its consent.

In all academic matters the university senate** is the chief governing and executive body of the University of London. Subject to the powers reserved to the court, it controls all affairs that are best calculated to promote the interests of the university as a place of education, learning and research.

*The university court consists of the chancellor, vice chancellor, chairman of convocation, six members appointed by the senate, four members appointed by the king in council, two members appointed by the London County Council, and one co-opted member.

**The university senate consists of the chancellor, vice chancellor, chairman of convocation, principal, heads of colleges, 17 members elected by convocation, representatives of each faculty of the general medical schools, University College, King's College, and four co-opted members.

Medical education in England began as an apprenticeship training. Following a period of training and service with an apothecary, students became apprenticed to practicing physicians who were permitted to instruct them in the wards of a hospital. In the course of time and with an increase in the number of students, the hospitals provided dissecting laboratories and classrooms. Students were registered, fees previously paid to individual instructors were paid into a central pool, classrooms and laboratories were expanded into separate buildings and a complete school evolved which was centered about and integral with the hospital. Hospital and school were organized as one institution.

Until the year 1900, the schools in London prepared students for the examinations of various licensing bodies including the examination of the university. After 1900 they became schools of the university, continuing, however, in all but one or two instances to be more closely associated with their hospitals than with the university.

The interdepartmental committee on medical schools (Goodenough Committee) in 1944 recommended that the schools be incorporated as educational institutions apart from the hospitals. The adoption of the National Health Service Act in 1946 gave effect to the committee's recommendation. By July 1948, when the act became effective, all the schools were separately incorporated as educational institutions. As schools of the University of London, they were required to submit their scheme of management to the university. The university required that the governing authority of the school contain representation from the university, the teaching staff and the board of governors of the teaching hospital.

While there are certain variations in the schemes of management of the different schools, in general they fol-

low a similar pattern. There is a governing board or school council. This body is the supreme authority and is responsible for the overall policies of the school, subject to such restrictions as may be imposed by the University of London. It is responsible for conducting the general business of the college and for financial affairs including the control and management of its real and personal property. This board varies in number of members in the different schools. In addition to lay members (usually citizens of prominence), it contains representatives of the university, of the governing board of the affiliated teaching hospital or hospitals, and of the teaching staff.

The officers of the governing board, consisting of chairman, usually a vice chairman and a secretary, are elected by the board. Terms of office vary among the schools but are usually of one-year duration. Reelection appears to be the custom.

There is also an academic board or college committee which is responsible for academic affairs including the content of the curriculum (in accordance with university regulations), general arrangements for teaching, the admission and control of students and the nomination of professors, lecturers and teachers.

The dean is appointed by the governing board upon nomination by the academic board or college committee. Usually his tenure of office is indefinite, though he may be reappointed annually. In a few of the schools he is a full-time officer, but in a number of them he devotes only part of his time to the school. Some of the full-time deans also carry teaching or other clinical service duties. In some of the schools which have part-time deans, there is a subdean devoting all of his time to the administration of school affairs. In others a secretary, usually a layman, is charged with this responsibility.

As a matter of passing interest it is noted that 10 of the 12 medical schools in London were founded prior to the establishment of the university in 1836. The schools are:

*St. Thomas' Hospital Medical School, 1561.

*Medical College of St. Bartholomew's Hospital, 1662.

St. George's Hospital Medical School, 1752.

*Guy's Hospital Medical School, 1769.

London Hospital Medical College, 1785.

Charing Cross Hospital Medical School, 1821.

University College Hospital Medical School, 1828 (incorporated in university, 1907).

King's College Hospital Medical School, 1829 (incorporated in university, 1910).

*Westminster Medical School, 1834.

*Middlesex Hospital Medical School, 1835.

*St. Mary's Hospital Medical School, 1852.

Royal Free Hospital School of Medicine (London School of Medicine for Women), 1874.

Westminster Medical School and St. George's Hospital Medical School conduct only the clinical years of the medical curriculum.

Discussions with school authorities and others, as well as published material, indicate rather clearly that though the London medical schools are schools of the University of London, they are not thoroughly woven into the fabric of the university. In some instances officials did not hesitate to say that as large a measure of independence from the university as possible was desirable. It was evident that, in some instances, the connection was little more than nominal and that the incorporation of the school as a separate entity apart from the hospital was undertaken with considerable reluctance. In gen-

*These schools were visited during the course of this study.

eral, however, it was agreed that this separation had not been disturbing and that hospital-school relations had continued very much the same.

The primary basis for the reluctance to become a full-fledged part of the university appeared to stem from the fear that those teachers who held university appointments would in the course of time exercise too much control over the affairs of the school, to the detriment of the recognized teachers and consultants on the hospital staffs who now had their own hospital services and carried on clinical teaching without any departmental direction or supervision.

It should be emphasized, however, that this is not true in all instances. In several of the schools visited, integration into the structure of the university was actively sought and welcomed. In most instances the full-time clinical, as well as the preclinical heads of departments, were given full opportunity to develop their departments and were receiving the cordial cooperation of their colleagues who did not hold university appointments. The trend appears to be definitely in this latter direction though it probably will require considerable time before the development is complete.

FACILITIES

Buildings: The buildings of three of the six medical schools in London that were visited (Guy's, St. Bartholomew's and St. Thomas') suffered extensive damage during World War II. While repairs have been made and are still underway, they continue to labor under severe handicap. Lack of funds as well as the general building situation have made it impossible to carry out the plans for modernizing the old and erecting the new buildings that have been planned. It is anticipated, however, that appropriations will soon be made and that the situation will be corrected during the next few years.

In all the schools visited, facilities appeared to be utilized to the fullest extent. Overcrowding was evident in some instances and inability to maintain the structures during the war years was apparent. The need for extensions and much new building also was evident.

Museums: The visitor was impressed by the splendid museums of anatomical and pathological material, of which much use was made in teaching, in contradistinction to the practices followed in most American schools. This was particularly true of the Gordon Museum at Guy's Hospital Medical School which contains the beautiful wax models made by James Towne of the dissections of Dr. John Hilton, and montages which accurately reproduce an extensive variety of lesions of the skin. The large collections at St. Bartholomew's and at St. Thomas' attracted attention. Of particular interest in the latter was the arrangement of panels demonstrating the subject currently under study.

Libraries: Libraries varied in size and content. In the smaller, as at St. Mary's, Middlesex, and Westminster, it was stated that through a medical circulating library, books and journals were readily available. Students of all schools have ready access to the large library at the University of London.

It was noted that in some of the libraries books were kept behind locked, glazed doors and that access could be had only upon application to the librarian.

Accommodations were available for a moderate number of students in the reading rooms. Libraries were open daily, including evenings, except on Sunday. Most of them closed at noon on Saturday. Comparatively few students were encountered in any of the libraries at the time of the visit. This, however, may have been due to conflict with lectures or other class hours.

Student Facilities: The provision of facilities for students has been a responsibility of each of the London medical schools. All those visited have some provision for housing students, varying from a few rooms, primarily for resident staff and clerks on maternity and casualty services, to small hostels or dormitories having accommodations for from 17 to 60 or more students. In no instance were these facilities regarded as sufficient. Several of the schools stated that plans had been made to extend materially the accommodations, lack of which was considered a severe handicap for the students. Lists of approved householders or lodgings were kept at the schools, but these were not under much supervision and were not considered particularly satisfactory because of the youth of the students at the time of admission. A large percentage of the students are residents of London and live at home.

In order to compensate, at least in part, for this deficiency, considerable attention is given to the organization of student activities of athletic and social nature. In all the schools visited there was a central organization of students under the names of student union or amalgamated students' clubs. Faculty and student representatives composed the governing boards or councils of these organizations. Various clubs were separately established representing social and athletic activities: music, art, common room, cricket, football (rugby and association), lawn tennis, hockey, fencing, sailing, rowing, boxing, swimming, golf, gliding, athletic, chess, dramatic, medical societies, physical society, squash, etc. In some of the schools the students engage in intercollegiate sports competition.

St. Mary's Hospital Medical School building, completed in 1933, provided a swimming pool, gymnasium, billiard and common rooms immediately adjacent to the entrance. Common and club rooms, shower and locker rooms are usually available.

In addition to such quarters in or near the school, five of those visited own athletic grounds of from 13 to 24 acres, usually located on the outskirts of London.

Restaurants or refectories were operated for students and faculty members. These were located either in the school building or were provided by the parent hospital.

Finances: Table I (see page 10) abstracted from the "Returns from Universities and University Colleges in Receipt of Treasury Grant, Academic Year 1948-49" as published by the University Grants Committee, London, provides information concerning the income of the medical schools of the University of London.

Income from Endowment represents a very small measure of financial support to these schools; in only one instance does it exceed 10 per cent and in two others about 5 per cent of total receipts.

Subscriptions and Donations provide little income. In only one instance did this source of revenue represent as much as 1 per cent of the total.

Income from Central University Authorities is government subsidy, which comes to the schools through the university and the University Grants Committee. It represents the major source of revenue. This source provided an average of 68.2 per cent of all income, and in two of the schools amounted to 80 per cent of their support.

Income from Fees for tuition, examinations, matriculation, graduation and registration, varied from 11.3 per cent to 27 per cent of the schools' revenue. It is understood that a large proportion of these fees are derived from scholarships held by the students, most of which are provided by local authorities.

Income from Other Sources varied from zero to 38.4 per cent. In in-

TABLE I — SUMMARY OF INCOME — ACADEMIC YEAR — 1948-49

Medical Schools or Colleges	Endowments			Donations and Subscriptions		Grants From Central University Authorities		Treasury Grants		Fees Tuition Examination Graduation etc.		Other Income		Total
	Particular Purposes	General Purposes	%		%		%	Non-Recurrent	%		%		%	
	£	£		£		£		£		£		£		£
Charing Cross Hospital				11	+	45100	76.	103	0.1	7750	13+	6377	10.+	59341
*Guy's Hospital	2289	3176	2.4	3000	1.3	164452	72.8			51775	22.9	1074	0.5	225766
King's College Hospital		89	+			41050	68.9			10080	16.9	8353	14.0	59572
London Hospital	866		0.7			88170	68.5			29887	23.2	9809	7.0	128732
*Middlesex Hospital	7174	1003	4.6	7	+	78035	44.5			22003	12.5	67380	38.4	175602
Royal Free Hospital	52	4110	4.9	3	+	56730	67.1			22952	27.1	648	0.8	84495
*St. Bartholomew's Hospital		591	0.4			117985	78.4			30070	20.	1766	1.2	150412
**St. George's Hospital	353	1013	3.1	12	+	22230	49.9			5321	11.9	15600	35.0	44529
*St. Mary's Hospital		703	0.7			84025	80.0			20228	19.3	50	+	105006
*St. Thomas' Hospital						92860	80.0			23263	20.0	....		116123
University College Hospital	14690	1731	14.7	52	+	78806	70.8			12619	11.3	3461	3.1	111359
* **Westminster Hospital		550	0.8	278	0.4	39626	54.7			9057	12.5	22897	31.6	72408

*These institutions were visited.
**These schools provide only clinical instruction.
Source: Returns from universities and university colleges in receipt of treasury grant—Academic year 1948-49. The University Grant's Committee, London.

stances where this source of funds was substantial, it represented primarily monies paid by the parent hospital for services rendered by the school (chiefly clinical and morphological pathology).

It is apparent from the data that these schools depend for the largest measure of their support upon funds from the government, most of which are made available through the University Grants Committee. Some funds are provided by local authorities (scholarships), and some through the ministry of health (for service to hospitals).

The University Grants Committee. This committee was established in 1919 "to enquire into the financial need of university education in the United Kingdom and to advise the government as to the application of any grants that may be made by Parliament towards meeting them."

The committee is advisory to the chancellor of the exchequer. Its members are appointed for terms of five years by the chancellor. The committee normally consists of 18 members (there were two vacancies at the time of the visit). Originally it was the practice to restrict membership to persons not in the active service of a university. This practice was changed in 1946, and at present the committee contains a number of individuals drawn from active academic circles. All, however, are appointed as individuals, not as representatives of the institutions at which they are serving. One of the present members is an industrialist and two are members of the medical profession. Except for the full-time chairman and deputy chairman, members serve without compensation other than small fees to cover the expense of attendance at meetings. There is a full-time secretary, assistant secretary and a small staff to carry on the committee's work.

In July 1946, the lords commissioners of His Majesty's Treasury, to whom the committee reports, expanded the definition of the committee's functions or terms of reference as follows:

"To enquire into the financial needs of university education in Great Britain; to advise the government as to the application of any grants made by Parliament towards meeting them; to collect, examine and make available information on matters relating to university education at home and abroad; and to assist, in consultation with the universities and other bodies concerned, the preparation and execution of such plans for the development of the universities as may from time to time be required in order to ensure that they are fully adequate to the national needs."

All fields of university education except forestry receive funds from government through the agency of the University Grants Committee at the present time. Except for the war period, it has been the practice to make grants to the universities on the basis of five-year plans. In the first year of the period, after consultation with the chancellor of the exchequer, the total funds available are determined. Block grants then are made to the universities. These are then allocated to the departments and schools of the university by the university court. There is no interference with the university's handling of the grant. Since the war, stimulated by the Goodenough Committee's report, funds have been earmarked for the medical schools. It has not been determined whether this practice will be continued.

The committee maintains an informal relationship with those responsible for formulating and executing university policy, and has frequent contact with the chief executive officers of these institutions. Its members and various subcommittees visit the various universities and their schools, especially at the time the quinquennial recommendations are in preparation.

While it was repeatedly stated that the committee does not interfere with the universities in the expenditure of grants made to them, the present quinquennial program was based in part upon the recommendations of the Goodenough report and contemplated that there would be an increase in the number of full-time clinical faculties, the payment of proper salaries to part-time clinical teachers, an increase in the size of classes (that were below an economical size—set at 100) and that all medical schools would be coeducational and admit a reasonable proportion of women students (15 per cent suggested).

The committee's report covering the years 1935-1947 indicates that Parliamentary grants to the universities increased as follows:

Universities	Grants		Percentage of Total University Income	
	1935-36	1946-47	1935-36	1946-47
England	£1,564,938	£5,496,414	32.4	52.4
Wales	178,825	412,508	48.5	60.3
Scotland	333,028	971,590	38.8	52.2
Total	2,076,791	6,880,512	34.3	52.7

The percentage of income received through this source by the medical schools in London (see Table I) indicates that those schools are more dependent upon parliamentary grants than are the other divisions of the universities.

In addition to grants for current expenses, since the war the committee also has advised the government in the matter of grants for capital purposes. These also are made upon the basis of plans for specific structures which are projected in the five-year plans.

Table II (see page 13) abstracted from the report published by the University Grants Committee for the academic year 1948-49, presents interesting financial data covering these schools.

It is recognized that these figures do not cover the full costs of medical education in these schools and that the financial and physical arrangements, the hospital-school relationships vary greatly among the schools.

On the basis of total expenditures, as set forth in this report, less the expense for capital purposes that was taken from income and the small balance transferred to reserves, the college expenditures per full-time student enrolled averaged approximately £249. It varied from £174 to £371 among the schools conducting the complete medical program. The average per full-time student in the two schools which conducted only the clinical phase of the program was £335 and £538 respectively. These crude averages may be misleading. They do not effectively reflect the scope of activities carried on in the schools.

The report indicates, further, that administrative expenses represented from 5.1 to 11.1 per cent; maintenance of premises from 7.6 to 15.9 per cent; other maintenance (including expense of fellowships, scholarships, prizes, pensions, grants to student societies, hostels and miscellaneous items) from 1.5 to 8.6 per cent; and departmental maintenance (including salaries of teaching staffs, laboratory expense, libraries and museums) from 71.4 to 81.5 per cent of total expenditures.

The expenditures for 1948-49 reflect the increased costs in recent years over those of the prewar period. The introduction of more full-time clinical teachers, the payment of compensation to part-time teachers and consultants under the National

TABLE II — SUMMARY OF EXPENSES — ACADEMIC YEAR 1948-49

Medical Schools or Colleges	Administration		Departmental Maintenance						Maintenance of Premises		Other Maintenance				Cap. Expense from Income		To Reserve	Total Expense	No. of Students
	Total	%	Salary Teaching Staff	Library	Museum	Laboratory & Other	Total	%	Total	%	Fellows Scholars Prizes	Student Society & Hostels	(1) Total	%	Total	%	Total		
	£		£	£	£	£	£		£		£	£			£		£	£	
Charing Cross Hospital	3986	7.8	26509	943	324	26509	39496	77.1	4135	8.1	101	963	3471	6.8	103	0.2		51191	199
*Guy's Hospital	17953	8.2	119560	2843	2443	39096	163942	74.7	18668	8.5	1665	900	18769	8.6				219332	1014
King's College Hospital	6710	10.6	40048	894	851	8741	50534	79.5	4865	7.6	203	500	1476	2.3				63585	260
London Hospital	12231	9.8	73117	1648	1664	18112	94541	75.7	10524	8.4	556	1416	4949	4.0	2645	2.1		124891	581
*Middlesex Hospital	8582	5.1	83601	1508	150	47592	132851	79.5	23204	13.9	370	419	2479	1.5				167116	450
Royal Free Hospital	8952	10.9	46811	1437		10581	58829	71.5	11410	13.8	765	88	3102	3.8				82293	473
*St. Bartholomew's Hospital	7243	5.1	77921	2075	1005	29368	110369	77.8	18723	13.2	396	678	5468	3.9				141803	740
†St. George's Hospital	3674	8.3	23296	1112		11673	36081	81.5	3394	7.7		750	1133	2.5				44282	132
*St. Mary's Hospital	11300	11.1	55596	1841		17580	75017	74.0	7887	7.8	4138	500	7179	7.1			1000	102383	448
*St. Thomas' Hospital	6464	5.2	60513	2847	2279	28784	94423	75.5	15832	12.7	1267	900	7422	5.9	900	0.7		125050	378
University College Hospital	8732	8.0	54582	1518	1624	20496	78220	71.8	17326	15.9	626		4638	4.3				108916	402
*†Westminster Hospital	6319	8.7	27074	1359	554	22960	51947	71.4	10933	15.0	601	1676	3532	4.9				72731	135

*These institutions were visited.
†These schools provide only clinical instruction.
(1) The difference between these totals and the sum of the two preceding items represents expenditure for pensions, examinations, interest on mortgage and loans and miscellaneous items.
Source: Returns from universities and university colleges—1948-1949.
University Grants Committee, London.

Health Insurance Act, the rising cost of other labor and material as well as recent increases granted to all teachers, materially increased the cost of the whole program. It was anticipated that a very considerable increase in parliamentary grants would be required to meet the rising costs.

Faculty: The teaching staffs of the medical schools in London which were visited were organized with the following grades: professors, readers, senior lecturers, lecturers, assistant or junior lecturers, tutors, curators or demonstrators, senior registrars, registrars and junior registrars. The grades of professor and reader are filled by university appointment (as described later). These posts are all understood to be whole-time positions. They are all filled by able, competent men and are found chiefly in the preclinical departments and the departments of pathology. Only three of the schools visited had professorships in the departments of medicine and surgery; one other had a reader in the department of surgery. These clinical professors also devote their entire time to teaching, research and clinical service. In this latter connection, they are debarred by regulations of the University of London from undertaking any private practice. There were no professorships in obstetrics or any of the other clinical specialties.

All other grades are filled by appointment by the academic boards of the schools or by the respective departments in which they serve. Most of those engaged in the preclinical branches devote full time to their positions. This is also true of a few of those in these grades and of those in the three grades of registrar in the clinical departments, who correspond to the several grades of resident found in American medical colleges.

In addition to the grades previously listed, two other categories are encountered in the clinical departments: (1) consulting physicians, surgeons or specialists, and (2) physicians, surgeons, specialists. Until July 5, 1948, when the National Health Insurance Act became effective, these consultants and physicians for the most part performed their teaching duties without receiving monetary reward. Since then, however, in accordance with the recommendations of the Goodenough report, they are paid for their service as teachers by the school and for their clinical service by the hospital (funds for service come from the ministry of health).

Except for a few lecturers to student nurses in the affiliated hospital, none of the teaching staff have any responsibility for the instruction of other than medical students.

Members of the teaching staffs in all grades below those of professor and reader are recruited from among the younger teachers or from other schools by the department heads or appointment committees of the school. The tenure in these positions is usually fixed and of comparatively short duration. Clinical positions in the hospitals are filled by the governing board of the teaching hospital under the ministry of health. These men are appointed annually and the school, as such, has no direct voice in their choice. The school's influence, however, can be brought to bear upon the choice through its representation on the governing board.

The appointment to the position of professor or reader is made by the university in accordance with regulations subscribed to by all the schools. When a position of professor or reader becomes vacant or a new one is established, the fact is advertised in the public press and in college and university publications, and applications are invited. A board of advisors pertaining to the appointment is organized. Such board, of 10 or 12 individuals, is constituted of representatives of the university, the medical school involved, other medical schools, nonuniversity men prominent in the

field in which the vacancy exists, and may include representatives of other related fields.

It is the practice to send a copy of each application to all members of the committee, who make a report, listing a number of candidates (six or eight) in preferential order. From a compilation of these lists, invitations then are sent to a number thus selected to meet the committee for personal interview. As a result of this procedure the committee makes its recommendation to the university authorities who, though not bound to abide by the committee's findings, usually follow its advice. It is the practice to first submit the committee's report to the academic board of the school for its approval.

Individuals appointed as professors or readers hold indefinite tenure of office.

The University of London has fixed retirement age at 65 years with the option of continuing to 70. A plan of superannuation has been developed. Under this plan the individual contributes 5 per cent and the school 10 per cent of the salary. This is paid to an insurance company of the individual's choice. A limited list of such companies is available for this purpose, as also are various options as to benefit arrangements.

The training of teachers can be said to begin with advanced students in the preclinical departments and similarly with the registrars in the clinical divisions. The latter are usually chosen from among house officers who correspond to the intern in American hospitals. At the present time house officers are appointed for terms of six months on either medical or surgical services and usually serve two such terms, one on each of the two services.

Salaries paid to professors have been made uniform throughout all medical schools in the United Kingdom, with some differential between those in the preclinical and clinical departments. This policy, as well as the differential, was the subject of much discussion and some controversy in the medical faculties and also among the faculties of other disciplines. The differential between salaries paid to the clinical professors and those paid to consultants under the National Health Service Act also was the source of some discontent.

Salary Schedule: The range of salaries paid by the medical schools during the academic year 1949-50 is summarized in the chart on page 16.

In addition, part-time clinical teachers in the categories of consultant or physician are paid varying amounts. In some of the schools there are two groups: (1) in medicine and surgery—those who teach three or four sessions per week, who are paid £400 per annum, and (2) in the specialties—those who teach two times per week receive £320 and those teaching once per week receive £160 per annum. In other schools part-time lecturers are paid £5 per lecture up to a maximum of 10 lectures.

Mention also should be made of the special distinction awards which were to be distributed under the National Health Service Act among specialists. These awards, to be granted by a special committee under the ministry of health, are to be made to approximately 34 per cent of the 5,700 consultants and specialists in England, Scotland and Wales. The awards are primarily a scheme to pay higher compensation to the better men. Of these, it is provided that 4 per cent will receive £2500, 10 per cent will receive £1500, 20 per cent will receive £500 per annum in addition to their regular compensation if on whole-time service or a proportionate amount if on part-time service.

It is intended that these awards will be kept confidential, that they will be distributed broadly throughout the countries and, though clinical

SALARY SCHEDULE—1949-50

GRADE	PRECLINICAL		CLINICAL	
	Whole Time	Part Time	Whole Time	Part Time
	£	£	£	£
Professor	1750-2400	.....	2750	.....
Reader	1300-1500	.....	2000	1000
Assistant Director	.....	.....	1400	.....
Senior Lecturer	1000-1400	1000	1350	400-500
First Assistant	.....	.....	775-1100	250
Lecturer	800-1450	50-600	1100	300-400
Demonstrator	550- 650	50-300	.....	37.10-200
Research Assistant	650	.....	650	.....
Advisor	.....	750	.....	.....
Curator	900	.....	.....	.....
Tutor	.....	.....	1000	.....
*Senior Registrar	.....	.....	300	.....
*Registrar	.....	.....	225	.....
*Junior Registrar	.....	.....	175	.....

*These salaries do not conform to the schedules published by the Ministry of Health, National Health Service, under date of June 7, 1949, which provide for: junior registrar, £670 per annum; registrar, £775 per annum, first year, £890 per annum, second year; senior registrar, £1000 per annum, first year, £1100 per annum, second year, £1200 per annum, third year, £1300 per annum, any subsequent year.

It was understood, however, that these schedules had not become effective generally.

teachers will be eligible, that they will not gravitate toward the teaching centers. Regional hospital boards, teaching hospital boards and the universities have been asked to submit nominations for the consideration of the committee. It was anticipated that these awards would be granted in the near future and would be made retroactive to July 5, 1948. It had been determined that for the purpose of the award the pathologist shall be considered a clinician. The percentages cited were to be applied to the entire number of consultants and specialists, including dentists, without regard to the individual specialties.

The effect of this action upon the teaching staffs of the medical schools, particularly upon the teachers in the preclinical divisions whose salaries at present are lower than those of their clinical colleagues though they are for the most part medically qualified, and who were not eligible for the award, remained in question.

Students: Students may be admitted to the medical schools in London in several ways:

(1) Those desiring to follow the complete program are required to pass the London matriculation examination conducted by the University of London, or its equivalent, or present a school certificate evidencing education sufficient to grant exemption from such examination. The matriculation examination covers the following subjects: English, mathematics, Greek, French, German or one other modern language, and one other optional subject. Students in this category, though they represent a considerable proportion of the student body, usually have had little or no university education, possess a minimum of general education and often have difficulty in their medical studies because of their lack of preparation in the sciences. Except in unusual circumstances, students under 17 years of age are not admitted.

(2) A second group consists of those students who have had additional preparation during one or more years in one of the higher schools, colleges or universities, and who have passed or gained exemption from the

first M.B. or medical examination. This examination, or its equivalent, covers the subject of inorganic chemistry, physics and general biology. Students in this group are admitted to the second year of the medical program (the preclinical studies).

Students of the first category are required to take the first M.B. or medical examination nine months after their matriculation and to pass it satisfactorily before they can proceed to the second year program.

Those who constitute the second group of matriculants usually must be 18 years of age. Ordinarily they have pursued a program of study which has provided a broader general education as well as instruction in the basic sciences. These students, therefore, usually are better prepared for the study of medicine, particularly if they have had more than one year of advanced study.

(3) A third category of entering students consists of those who have pursued further study in universities, have passed the first examination 18 months previously and have passed the second examination for medical degrees or its equivalent. This examination covers the subjects of human anatomy (including gross, microscopical, neurological anatomy and embryology), physiology (including histology, organic chemistry and biochemistry) and pharmacology.

Students in this category are admitted to the clinical phase of the program which extends normally over three years.

All of the London schools are now coeducational. Women are accepted in the proportion of approximately 15 per cent.

All of the schools visited reported that they received many more applications than they could accept and that the number was increasing. The fact that many candidates for matriculation filed multiple applications was recognized. It was stated that the deans of the London schools had given some consideration to this problem, but no method of dealing with it had been determined.

In view of the large surplus of candidates, the schools had developed mechanisms for selection of matriculants. A few depended primarily upon the candidate's record in the examination. Others gave consideration to (a) the candidate's scholarship record, (b) letters from the headmaster or principal of the school which he had attended, (c) letters from the references pertaining to the candidate's character and personal attributes, and (d) a personal interview with the candidate. In all schools (except one in which the dean selected the students) there was an admissions committee whose function it was to select the quota of matriculants. Some of the schools admitted only those students who declared themselves to be candidates for university degrees (see later discussion).

Though some consideration had been given to the use of aptitude or other psychological tests, such examinations had not been used and it was generally felt that they would not be particularly helpful.

The cost to the student for pursuing the complete program in medical education in the schools in London approximates £475 to £500. This is inclusive of entrance and tuition fees, books and instruments, and membership in student union or amalgamated student clubs, and does not include living or other incidental personal expenses.

Many scholarships are available through the schools, the university, local authorities, ministry of education or other sources. The University Grants Committee's report indicates that from 1935-36 to 1946-47 the percentage of medical students attending the London schools who received financial assistance increased from 11.8 per cent to 31.9 per cent. The latter figure includes students who

had served in the military or other forces during the war. The number of assisted students has continued to increase in later years. It was stated that practically any student accepted by a medical school who needs financial aid could obtain such assistance, not only to cover the cost of tuition, but also for his maintenance.

The planning committee of the Royal College of Physicians of London stated that "only about one-third of the cost of university education in Great Britain is recovered from student fees." The committee recorded its opinion that university education be made entirely free. The statements of medical school officers indicated that there was a fairly rapid trend in this direction.

All of the schools conduct a student health service. A physical examination is required at the time of entrance and periodical examinations are made during the time students are in attendance. Examinations usually include Mantoux and Shick tests and chest x-rays. In most of the schools a medical officer is in charge of the service. In some this duty is assigned to a senior registrar on the staff of the teaching hospital.

The deans, sub-deans and secretaries of the schools are responsible for the administration of student affairs. In some of the schools members of the student body serve as members of advisory committees in this connection. Students appear to have ready access to members of the faculties, especially to those who serve on a whole-time basis, and more particularly to those in the lecturer and demonstrator grades. Registrars in the hospitals frequently serve as tutors and advisors to the students during the clinical years in addition to their regularly assigned service duties.

The Curriculum: The complete curriculum in the London schools extends over a total of 20 terms of three months (11 to 12 weeks) each, and covers a period of six or more calendar years.

The course of study is rather sharply separated into three divisions: (1) premedical, (2) preclinical or intermediate, and (3) clinical.

Historically, in England as well as the United States, little attention was given to the student's general education until the latter part of the nineteenth century. An apprentice type of training prevailed until the advance of science clearly indicated the need for a better understanding (on the part of the student) of the sciences in their relation to the practice of medicine. By this time the independent preceptors had been organized into teaching groups (in this instance in connection with the hospitals), and the hospital medical schools had been established. These were almost entirely independent institutions apart from the higher schools, colleges or universities. Whereas in other countries the function of instructing the student in the basic sciences preparatory to his entrance upon the study of medicine was allocated to or assumed by the institutions of higher learning, in London this responsibility was taken over by the medical schools. Though in recent decades the heads of the basic sciences departments in these schools have become professors or readers in the university, they are attached to the individual schools.

The Premedical or Initial Period: Students may gain admission to this first division of the medical curriculum without formal education upon satisfactorily passing the University of London's matriculation examination or, as in the case of most students entering at this time, upon presentation of the required secondary or other school or college credentials upon which the university will grant the matriculation certificate.

Most of the London medical schools require that the students

seeking to enter at this level must be 17 years of age. Approximately one-third or more of the students enter in this manner.

The preliminary or matriculation examination is open to all persons over 16 years of age. It includes English, elementary mathematics and three other subjects selected from a wide range.

During the first period the subjects of chemistry (inorganic and organic), physics and biology (botany, zoology and comparative anatomy) are covered. This year of three terms is followed by the first M.B. examination.

It was stated that the proportion of students failing in this examination was rather high, in some instances 30 per cent or even 40 per cent. Usually if a student fails to pass in all three subjects, he is denied further admission. Following failure in two of the subjects, the student is interviewed, the circumstances examined and after such screening he may or may not be permitted to continue. Failing in one subject only, the student is permitted to continue but required to present a clear record prior to taking the second M.B. or medical examination.

The Preclinical or Intermediate Period: Students gain admission to this second division of the curriculum after passing the first M.B. examination or upon the presentation of satisfactory credentials indicating that they possess the required knowledge. Usually such credentials are obtained as the result of study at some college or university outside of London. Most of the London schools require that a student entering at this level be 18 years of age.

This period extends over five terms, 15 months, one and two-thirds academic or a minimum of one and one-third calendar years. Studies covered consist of:

(1) *Anatomy*, which is variously divided into gross anatomy; embryology; neurological, topographical, functional and surface anatomy, and microscopical anatomy. Lectures, dissection, prosection, study of museum specimens, demonstrations and the use of the fluoroscope are included among the methods of teaching.

(2) *Physiology*, under which one finds such designations as general, practical, experimental and applied physiology. Histology is also often included.

(3) *Organic chemistry and biochemistry.*

(4) *Pharmacology*, often including materia medica and therapeutics.

(5) *Psychology.* In some of the schools, a short course in normal psychology is given.

In a few instances there was evidence of some coordination in the teaching of these subjects, but for the most part they were being taught as independent subjects. Anatomists were teaching function as well as structure, but without reference to or participation by physiologists. Similarly, there was little evidence of coordination between physiologist and pharmacologist or biochemist.

Upon completion of these five terms of study, the student takes the second M.B. or medical examination.

As in the instance of the first examination, failure to pass all subjects would terminate the student's registration. This is rather infrequent. Most of the schools, however, require that the student shall have passed satisfactorily in all parts of both the first and second M.B. examinations before permitting his registration in the clinical division of the curriculum.

The Clinical Period: After satisfactorily completing the first two periods, the student enters upon his clinical studies. At Westminster Hospital Medical School, which was visited (also at Charing Cross, King's College, and St. George's Hospital medical schools), only the clinical division of the program is conducted.

Students enter these schools who have followed the preclinical program elsewhere (chiefly at King's College and University College, London). Students from Oxford and Cambridge universities also transfer to any one of the London schools at this level. These latter students continue as candidates for the degrees of their respective universities, and upon satisfactory completion of their studies return to those institutions for the conferring of the degrees.

The clinical period consists of 12 consecutive terms—a minimum of three calendar years. Instruction is continuous throughout except for such brief vacations or holidays as the student, with the consent of the faculty, may arrange. In some of the appointments or assignments, he may be required to secure some other student to carry his duties during his absence.

This period covers instruction in all branches of clinical medicine and pathology (including bacteriology). In all the schools which were visited, the period is initiated with an introductory term. During this term the student is oriented toward the study of clinical medicine. In most instances this course is made the responsibility of the university professors of medicine, surgery and pathology.

In addition to instruction in interviewing patients (or history taking), making the physical examination and use of ordinary diagnostic instruments, there are lectures and clinical demonstrations in pathological physiology, applied pharmacology and functional (psychosomatic) disorders. In one instance this period covers two terms (six months), during which the student also serves in the casualty department and receives instruction in traumatic surgery. In general, it would appear that this period is well worthwhile for the student, particularly where it is well organized and where there is coordination and integration of instruction between the several departments involved. This is especially so because of the distinct separation between the preclinical and clinical periods.

Following this first term, the pattern of progression is fairly uniform, though there are some variations. Usually the second and third terms are devoted to clinical clerkships on the medical wards; the fourth and fifth terms to dresser assignments on the surgical wards; the sixth and seventh terms to obstetrics (midwifery), gynecology and pediatrics; the eighth, ninth and tenth to the specialties—psychiatry, neurology, eye, ear, nose and throat, tuberculosis, fevers (infectious diseases), thoracic surgery, physiotherapy, etc.; the eleventh and twelfth terms are used in a variety of ways. In most of the schools, the last term is left free of definite assignments—the time to be filled at the option of the student for review courses, study or tutoring for final examinations. In some schools both terms are given over for such studies; in others the student returns to the medical services or may continue on assignment to the specialties.

The program also varies between the schools as to assignments to patients in the hospital and in the outpatient department. In some the assignment to both types of patients falls at the same time. In others outpatient assignments follow those to the wards. The students usually are required to live in the hospital during assignments to casualty surgery (one to two weeks); to obstetrics (one to two weeks in the hospital and two to three weeks when assigned to the district or home delivery service); fever hospital (two weeks), and in some instances tuberculosis sanatorium (two weeks).

Lectures and demonstrations are interspersed with practical work on the wards and in the outpatient department throughout the three years.

During the first three or four terms there are lectures and laboratory work in general and special pathology. Autopsies are scheduled at a regular hour daily (10:45 A.M. or 12:30 P.M.), and students are required to attend in those instances in which post mortem examinations are performed upon deceased patients whom they have attended. In the latter terms of the clinical period they may serve as clerks in the post mortem room. They record the findings of the pathologist but have no responsibility to follow through the microscopical examination.

In the hospitals the clinical work is divided into services or firms. Each service or firm is under the supervision of a consultant. The firm consists of consultant, one or more registrars and/or assistants, and a house officer (or intern). Each firm or service will have from 20 to 40 beds on the general medical and surgical services.

Groups of students (also often referred to as firms) will number from six to eight. During the terms the student is assigned to general medicine and surgery, he will be assigned to at least two firms and may be a member of two differently composed student groups. When assigned to the specialties, students do not carry the same responsibility for service to patients. At the same time, they may be assigned to several specialty services which they attend only two or three times each week. The instruction in these instances is carried on chiefly by lecture and clinical demonstration.

A typical day during the clinical period might be indicated as follows: 9-10 A.M., lecture; 10 A.M.-12:15 P.M., ward rounds or ward or outpatient work; 12:30-1:30 P.M., autopsy; 2-4 P.M., ward rounds or ward or outpatient work; 4-5 P.M., lecture.

These hours will vary at the different schools, but the division of time is generally applicable. In most of the hospitals the student may return to the wards and work until 7 P.M., but this is not a requirement.

The third or final examination for the Bachelor of Medicine, Bachelor of Surgery (M.B., B.S.) degree is divided into three parts:

Part I—pathology and hygiene and forensic medicine.

Part II—Medicine and applied pharmacology and therapeutics.

Part III—surgery and obstetrics and gynecology.

Other subjects covered by the curriculum are included in one or another of these divisions. Part I may be taken 30 months after passing the second M.B. examination and entering upon clinical studies. Parts II and III cannot be taken until after the lapse of 36 months after entering clinical studies.

Examinations are given twice each year. A student need not take all parts at any one time. Examinations consist of written papers, practical work (clinical examination and report) and an oral examination. Candidates who fail any part of the examination are required to present evidence of at least three months of further study before a re-examination is given.

The university prescribes the content of the courses to be covered by the instruction, and all schools are required to meet this requirement.

Other Examinations: In addition to the university degree, privilege to practice medicine in England may be obtained by passing the examination of the Conjoint Board of the Royal Colleges of Physicians (London) and Surgeons (England). Those successfully passing this examination are designated as: Licentiate of the Royal College of Physicians — L.R.C.P.; Member of the Royal College of Surgeons—M.R.C.S.

Privilege to practice medicine also may be obtained by passing the examination of the Society of Apothecaries, in which case the designa-

tion given is: Licentiate Medicine—Surgery Society Apothecaries—L.M.S.S.A.

The License of the Royal Colleges—The final examination for this license is divided into four parts:

Part I—pathology (including morbid anatomy, histology, and clinical pathology).

Part II—medicine (including medical anatomy, forensic medicine, hygiene and preventive medicine).

Part III—surgery (including surgical anatomy and the use of surgical appliances).

Part IV—midwifery and gynecology.

Candidates must present proper evidence of having pursued recognized clinical courses for the required time before they are admitted to the examination.

While this examination has been made more rigid, it is generally regarded as being less difficult to pass than the degree requirements of the University of London. A considerable number of medical students take this examination as a safeguard should they fail to qualify for the university degree. Several of the deans stated that on occasion they may suggest to a weak or mediocre student that he prepare for the conjoint board examination rather than for that of the university.

The License of the Society of Apothecaries—This license has an interesting history. In the main the examination for it follows the same general pattern but is less demanding than that of the conjoint board. Few students qualify to practice medicine under this examination at the present time.

Affiliated Hospitals: On July 5, 1948, when the National Health Service Act became effective, 3,279 hospitals, clinics and convalescent homes in England were taken over by the government and placed under the control of 14 regional hospital boards. One hundred and forty-seven other hospitals, designated as teaching hospitals, were placed under the control of 36 boards of governors. Of these, 26 are in London and 10 are in the provinces. Of the London hospitals, 12 are the parent hospitals of the medical schools, 13 are specialized hospitals devoted primarily to postgraduate teaching, and one is a dental clinic.

Prior to July 5, 1948, all but two of the hospitals and the associated medical schools had been organized as single institutions. On that date all of the medical schools and the associated hospitals were separately incorporated. An interlocking membership representing hospital and medical school was provided in the governing boards of both hospital and medical school, with representatives of the university on the boards of the medical schools. The governing boards of the hospitals are appointed by the minister of health who may (and thus far has) invited suggestions concerning appointments from the hospital. He need not, however, accept these suggestions.

The memorandum of the National Health Service on the development of consultant services states that the board of governors of the teaching hospitals are required, in addition to their primary functions of providing for the sick, to provide special facilities for the clinical instruction of undergraduates and postgraduates, and for research by members of the teaching staff in accordance with the educational policy of the university or medical school concerned. "It is highly desirable that there should be the closest association between the university, the teaching hospital and the regional board hospitals with a view to the encouragement of research and the training of consultant staff as well as the routine training of students."

The memorandum also calls attention to the necessity for close collaboration between the teaching

hospitals and those under the regional boards in the sharing of responsibilities for service, teaching and research. "In particular, arrangements will have to be made by the university or medical school with the regional board for instruction in tuberculosis, infectious diseases and mental disease . . . and often for instruction of students in other subjects."

In the provinces, several hospitals are included under the board of governors of the teaching hospital. In London, up to July 1, 1950, only the hospitals previously mentioned were designated as teaching hospitals. Plans were being developed, however, in several instances looking to the amalgamation of several hospitals under a single board or otherwise effecting a closer affiliation with the presently designated teaching hospitals in order to provide adequate teaching facilities.

Because of the destruction of hospital facilities during World War II several of the larger hospitals and schools do not now have sufficient accommodations for patients to provide adequately for clinical instruction.

Though the hospitals and medical schools are now separate institutions, their interlocking boards and their long years of operation under a single governing authority have made it possible to continue in practice the cordial relations and working arrangements that prevailed in the past.

Whereas all resources of the hospitals under the regional boards, including endowment funds, were pooled, those of the teaching hospitals remained under the control of their governing boards. The teaching hospitals' operating and capital expenses are paid by the National Health Service. In this respect these hospitals have been definitely benefited. The income from their endowment funds is to be expended, so far as possible, for the purposes stipulated by the donor. It cannot be used for the ordinary care of the sick, but may be used for special or extraordinary service. Endowment income can be used for capital purposes; unfortunately, annual income from this source is too small to be effectively used in this manner.

Most of the hospitals visited were in old buildings. Patient accommodations are in large wards. Much of the equipment is obsolete. The inability to maintain properly the buildings and equipment during the war years and the short supply of materials since the war were readily evident.

The professional services, particularly in medicine and surgery, are divided into small units of from 20 to 40 beds, each of which is made the responsibility of a firm as previously noted. Where there are university professors, these have no greater clinical service than the consultants and no direct control of the teaching or professional service on any other than their own services. Clinical teaching, therefore, is carried on quite independently and according to the desires of each firm. Such coordination as exists results from the good offices, persuasion and diplomacy of the university professor.

The number of students in relation to the number of patients is such, in most instances, that the student's clinical experience is rather limited. For this reason and particularly with reference to some clinical divisions, some of the schools have arranged for the use of other hospitals. This, however, often interferes with the students' attendance at lectures and operates as a considerable handicap.

All the hospitals visited had very large outpatient departments. It was reported that the attendance of patients in these departments had increased greatly in recent years. Many patients had been referred by their physicians for diagnostic study and treatment. Long waiting lists were

reported in the outpatient divisions as well as in the hospitals. The service load is so great that it appeared to interfere seriously with good instructional practices. The work of the student is restricted. He has comparatively little opportunity to examine patients. His instruction is often reduced to demonstrations and listening to the clinician's running comments or clinical lectures.

Alumni Organizations: Alumnal organizations, such as exist in practically all medical schools in the United States, were not encountered in any of the London schools which were visited.

In one school there is an annual "old students" dinner. In two others, some of the graduates subscribe to the student's or hospital's bulletin. Another school publishes a directory of its graduates in its annual prospectus. One school conducts an appointments bureau, through which it offers a service to its graduates in obtaining appointments as house officers, registrars, assistantships, locum tenens opportunities and other positions.

None of the schools reported the receipt of any measure of financial support from previous students.

Graduate Training: Graduate training is conducted on a limited scale in most of the schools through assistantships in the preclinical departments and appointments as registrars in the clinical divisions. In several of the schools opportunities for study and research are offered in the basic science and preclinical departments to students who are preparing for the degree of B.Sc. in the university or for those who are preparing for M.D. or M.S. degrees.

Postgraduate Training: None of the schools are carrying on any very active programs for graduates in medicine. Most schools give a brief refresher course each year for graduates who are preparing to take the second examination (F.R.C.S.) of the Royal College of Surgeons (Eng.). Otherwise, however, no refresher courses or other types of training for graduates are conducted.

Research: In some of the schools, a very moderate amount is provided in the regular budget for research, this being primarily available to the preclinical departments. In one of the schools in which university professors have been long established in medicine and surgery, these departments have well organized laboratories that derive some support from the budget. Other funds are made available to them by the Medical Research Council (see later). In other schools in which such whole-time professorships have been recently established, research laboratories were in process of development.

The Wright-Fleming Institute of Microbiology, associated with St. Mary's Hospital Medical School, carries on research in bacteriology and immunology. It is separately incorporated and financed. It does, however, provide instruction for medical students in vaccine therapy and allergy.

In general, however, little research work or clinical investigation is carried on by the members of the clinical departments of the London medical schools.

The Medical Research Council: The major source of support for medical research in Great Britain stems from the Medical Research Council. The council was established originally as the Medical Research Committee under the National Health Insurance Act of 1911. The committee was appointed in 1913 under the National Health Insurance Joint Commission to administer funds provided for research into tuberculosis and other diseases affecting the insured population. The onset of World War I diverted its work to the study of health problems of urgent military importance.

The Ministry of Health Act of 1919 altered its structure, transferring its

functions to a committee of the privy council. (This council is directly advisory to the crown.) In consequence, the former Medical Research Committee in 1920 was reconstituted as the Medical Research Council under this statutory authority and was granted a royal charter. Funds for its work are provided directly by the treasury in the form of a grant-in-aid approved annually by Parliament. It is understood that this grant is not debatable in Parliament.

The Committee of the Privy Council for Medical Research consists of the lord president of the council, chairman; The minister of health, vice chairman; and the secretaries of state for Scotland, for home affairs, for commonwealth relations and for the colonies. The secretary of the Medical Research Council also serves as secretary of this committee.

Two other research councils, for the physical sciences and for agriculture, have been established and are similarly organized. All are said to be entirely free of political interference or influence.

The Medical Research Council consists of 12 individuals, nine chosen for their scientific qualifications and three laymen. Of the latter, one must be a member of the House of Lords and one member of the House of Commons. All are appointed by the committee of the privy council. Those who are appointed as representatives of either of the houses of Parliament vacate their membership should they cease to hold office in Parliament. The nine science members are appointed after consultation with the president of the royal society (of science) and with the existing members of the council. These nine members serve for terms of four years and may not be reappointed except after a lapse of one year following the expiration of a term of service. They are chosen as representatives of the different branches of curative and preventive medicine and the underlying fundamental sciences. The council's membership, therefore, consists of men of outstanding qualifications in their respective fields. The council appoints its own secretary, at present, H. P. Himsworth, M.D., F.R.C.P., formerly professor of medicine, University of London.

The council is assisted by a large number of advisory committees which it appoints. Some are standing committees on long-range projects, others are organized on short-term bases for particular problems.

The council carries on its program under the following main divisions:

1. Maintains the National Institute for Medical Research at Mill Hill, London. In a splendid building (dedicated May 5, 1950) research is in progress in chemotherapy, virology (including the World Influenza Center administered for the World Health Organization), biological standards, experimental biology, bacterial chemistry, physiology and pharmacology, biochemistry, biophysics, and optics, and there is a fine instrument shop and electronics laboratory. Sir Charles Harrington is presently the director of the institute.

2. Maintains three other laboratories: (a) the National Collection of Type Cultures of Micro-organisms at the Lister Institute, London; (b) the Standards Laboratory, Dunn Institute of Pathology, University of Oxford, and (c) the Dunn Nutritional Laboratory, University of Cambridge.

3. Maintains special research departments for clinical work at University College Hospital, London; the National Hospital for Diseases of the Nervous System, Queen's Square, London, and Guy's Hospital, London.

4. Employs a permanent, wholetime, scientific staff at the abovenamed institute, laboratories and centers, and in some cases as attached workers in universities or hospitals elsewhere.

5. Expends the largest proportion of its funds in making grants-in-aid

of research projects at universities, medical schools, hospitals, and other centers in Great Britain and Northern Ireland, and occasionally overseas.

6. Promotes special studies into problems of health and disease in tropical climates.

7. Promotes investigations into conditions affecting the health and efficiency of industrial workers.

8. Undertakes special researches which administrative governmental departments may require for the assistance of their work.

9. Fulfills a statutory obligation in maintaining standards for the biological assay of therapeutic substances manufactured in Great Britain or imported from abroad. (Work is done at national institute.)

10. Grants traveling fellowships, provided by special endowments or otherwise, to enable qualified individuals to pursue study and research at selected centers abroad. (The council has acted for many years as the agent of the Rockefeller Foundation in the award of traveling medical fellowships for British workers.)

11. Issues special reports, mainly for the publication of results of some of the research work which it has promoted. Most of such studies, however, are regularly published in various scientific journals.

12. Is now administering (for an initial period of five years) the Public Health Laboratory Service for the ministry of health. The cost of this is provided separately and hence is not a charge upon the council's funds for research.

Funds at the disposal of the original Medical Research Committee in its first year (1914) totaled £55,000 (roughly $220,000). In 1939, at the beginning of World War II, funds available to the council amounted to £195,000, and at its close (1945) to £295,000. For the year 1949-50, the total exceeds £1,000,000.

In 1939 the council listed 19 research establishments. At present the number is in excess of 40. During the last war additional functions were added to the council's activities. These call for the expenditure of funds of an amount equal to that provided for research as given previously.

Grants-in-aid of research projects are made upon the basis of requests presented by the interested investigators. The faculties of the medical schools, therefore, may look to the council for assistance in carrying on their research studies.

It is the practice of the council to pay directly all salaries of investigators and technical staff. Funds may be advanced for small items of material and supplies which may be purchased to advantage locally. However, the council operates a central purchase and equipment division for England, Scotland, Northern Ireland, Wales and overseas. Expensive items of equipment remain the property of the council. On occasions, therefore, the council may know of a required piece of equipment that is not in use or may be available for additional service and hence, by obtaining it for an investigator, may save expense and wastage.

In addition to the support of the operating expenses of research projects, the council has authority to make capital grants for the construction of research facilities. The council also is empowered to receive, hold and administer private funds or properties entrusted to it by grant, gift or bequest. Various benefactions have been received, both for general and specific purposes. Such funds materially augment the sums appropriated annually by Parliament.

Although through the years the Medical Research Council has become the major source of support for medical research in Great Britain, other voluntary or independent foundations perform important and valuable roles.

The Nuffield Foundation, one of the

largest of these, expended in excess of £91,000 in support of the medical sciences during the year 1949-50, and had unexpended allocations in this field at the end of the year in excess of £319,000. In addition it was liberally supporting research in the natural and social sciences, providing fellowships and scholarships in various fields and supporting activities in behalf of the care of old people and in other miscellaneous projects.

OXFORD UNIVERSITY

The two ancient universities of England—Cambridge and Oxford—date from the eleventh century. All the other universities in England were founded subsequent to the year 1800. The University of Oxford, though dating from 1167, received its first charter in 1214 and was not incorporated by Parliament until 1571. Originally supported by church and crown, religious tests for admission were abolished in 1871. Women have been admitted since 1920.

Basic to the organization of the university are the colleges, halls and societies. Of these, there are 23 colleges, two halls for men and five societies for women. Students desiring to matriculate in the university must first be accepted for admission by a college, hall or society. Each of these is an independent body having its own constitution, rules and regulations, administrative officers, buildings and arrangements for the boarding, lodging and teaching of students.

ORGANIZATION OF THE UNIVERSITY

The supreme administrative authority of the university is the Hebdomadal Council. It consists of 18 members elected by the congregation of the university, with chancellor, vice-chancellor, two proctors and last vice-chancellor (for one year from his vacating office, thereafter a pro-vice-chancellor is appointed by the chancellor). This council or central board is responsible for overall policies, finances and general university affairs. The congregation of the university consists of those graduates who hold the Master of Arts or some higher degree.

In addition, each of the faculties has its own faculty board responsible for academic affairs and there is also a General Board of Faculties upon which each faculty has representation.

THE MEDICAL SCHOOL

The board of the faculty of medicine is generally responsible for the academic affairs of the school. In 1949 the position of dean of medicine was abolished. At present the Regius Professor of Medicine (Dr. A. D. Gardner) has been elected chairman of the board. Other duties of the deanship have been allocated to the Secretary of the Faculty (Mr. R. T. Hewitt), a nonmedical administrative officer. Two other officers have been added to the faculty: (1) preclinical adviser (Dr. J. M. Walker), and (2) director of clinical studies (Mr. S. C. Truelove).

The board functions largely through two committees: (1) preclinical and laboratories, and (2) clinical teaching.

Until 1940 the Regius Professor of Medicine was officially head of the department of medicine and had medical duties that were either clinical or research. Since the end of World War II (1945), he has been a full-time administrative officer and is, in fact, the head of the school of medicine. He functions through the previously named committees. The present Regius Professor of Medicine serves also as vice-chairman of the board of governors of the regional teaching hospitals and devotes almost one-half of his time to national health service activities.

In 1936 the Nuffield Foundation established five clinical professorships at the university: medicine, surgery, obstetrics and gynecology, anesthesi-

ology and orthopedic surgery. A sixth, in plastic surgery, was added later. The Nuffield Committee for the Advancement of Medicine was then organized and made responsible for the administration of the funds provided for these chairs. This committee consists of the five Nuffield professors, the director of plastic surgery, representatives of the hospitals in which these men have service, the Regius Professor of Medicine and two members of the board of the faculty of medicine.

The board of the faculty, having been long established and until the establishment of clinical courses in 1937 having given primary attention to the preclinical departments, continues (in practice) to devote its attention chiefly to these departments.

The Nuffield Committee, consisting largely of clinicians, gives its attention to clinical affairs. Overlapping in membership between the two groups promotes collaboration and avoids friction. Officially, the board of the faculty is ultimately responsible for the conduct of the entire program in medicine.

FACILITIES

Laboratories and lecture halls for the preclinical departments are located in separate buildings, which are located in the same general vicinity in the town. Clinical facilities are quite separate (see hospitals) and there is comparatively little relation between these two divisions. A new building for physiology was under construction. Preclinical facilities were well equipped and quite adequate for the size of classes that were admitted.

Library facilities are exceptional. The Bodleian Library with its vast collection of literature assembled during an unbroken period since 1602 is the largest university library in the world. Each of the colleges also possesses its own library, many of them containing works of exceptional value. An undergraduate library consists of modern works in all fields of study. A central catalogue makes this vast collection readily available to all students and members of the university.

FINANCES

The report of the University Grants Committee, London, for the year 1948-49 (see page 29) provides data on income and expenditures.

FACULTY

The medical faculty at Oxford consists of both full-time and part-time members. The staff in the preclinical departments is composed entirely of full-time appointees, many of whom hold international reputations for their contributions to science. In addition to the full-time Nuffield professors in the clinical departments, there are both full-time and part-time readers and lecturers. The university has a voice in the selection of the part-time consultants who serve as clinical teachers and those thus selected are given faculty titles and receive compensation for teaching from the university.

The establishment of the Nuffield professorships, though adding strength to the university teaching, was not entirely welcome to the medical staff of Radcliffe Infirmary (the main teaching hospital) because of the loss of beds for them and the competition in their private practice. With the advent of the National Health Service, these men became part-time appointees of the university and now look forward to the advantages that will accrue through the construction of additional buildings.

The compensation paid faculty members follows the same schedule as in other English universities as described under the chapter relating to the medical schools in London.

Professors at Oxford, of whom there was only one in each depart-

SUMMARY OF INCOME*

(For the entire university)

Endowments		£ 274,987	20.6%
For particular purposes	£174,002		
For general purposes	100,985		
Donations and Subscriptions		43,268	3.3%
Grants from Local Authorities		None	.....
Parliamentary Grants		687,937	51.6%
**Fees for Tuition, Examinations, Graduation, etc.		234,248	17.6%
Other Income		92,234	6.9%
Total		£1,332,674	

*Separate figures for the medical school were not obtained. However, it was stated that the medical school was receiving about £130,000 per year through the University Grants Committee (included in "Parliamentary Grants" in Summary) and £60,000 from the Nuffield Foundation. Fees totaling about £2,500 just about defrayed the costs of examinations and were therefore offset by this expense.

**A large part of student fees for formal teaching is paid to the colleges and is therefore not included in this item.

SUMMARY OF EXPENDITURES

Administration		£ 79,952	6.4%
Departmental Maintenance		822,372	65.5%
Salaries of Teaching Staff	£523,337		
Laboratory Maintenance	177,648		
Libraries	98,670		
Museums	22,717		
Maintenance of Premises		115,109	9.2%
Other Maintenance		198,949	15.8%
Including Fellowships and Scholarships	675		
Grants to Student Societies	.....		
Grants to Hostels	3,363		
Capital Expenditure from Income		38,421	3.1%
Allocation to Reserves		77,346	
Total		£1,332,149	

ment, are practically autonomous and in complete control of their department. They prepare the budgets for their departments subject to the review of the central board. Grants made to the department are expended at their discretion. They have power of appointment and dismissal of members of their staff up to the rank of lecturer. Retirement is fixed at 65 years of age. Pension arrangements are the same as at other English universities.

STUDENTS

The total number of students admitted to the medical school is fixed by university decree after the headmasters of the colleges (acting together for men) and the women's societies (acting together for women) have agreed upon the quota and this total has been approved by the central university committee. Students with approved war service may be admitted beyond the fixed quota. Under present conditions the number of foreign (overseas) students is necessarily greatly restricted.

Students at Oxford are divided into two groups: scholars and commoners. The term scholar applies only to those who hold Oxford College awards. This group represents about 10 per cent of the student body. The term commoner applies to all other, or about 90 per cent of the student body. It includes those who receive scholarship awards from the state and local authorities, ex-service men and school scholars. As indicated previously, all candidates for admission to the university must first

gain acceptance by one of the colleges, halls or societies.

Scholarships are awarded by the various colleges and societies after competitive examination. In most instances the candidate must not be over 19 years of age. Scholarships are tenable for two years but are renewable for not more than two additional years.

Whereas in earlier years practically all students resided in the colleges and halls, the great expansion of the student body presently makes this impossible. Students, however, must be members of one of the colleges and live either in the college building or in licensed lodgings. Students pursuing studies in the various disciplines live together throughout their attendance at the university. All are assigned to tutors and have regular sessions with them regardless of the field of study in which they are registered. In recent years there has been some grouping of medical students (both preclinical and latterly clinical) with the same tutor. Tutors frequently require students to prepare essays or other exercises (extracurricular) in order to advance their education.

This ancient tutorical practice and the daily association with students in other fields of study greatly enhances the educational experience of the student at Oxford. Though clinical teaching is comparatively a recent development (since 1937), the tutorial system has been extended to the clinical years. Experiments in tutorial practice in this area are still in progress. A definite pattern has not been established as yet.

In addition to their entrance examination, the colleges, halls and societies also require certain qualifications of character and intellectual attainments. After admission to a college the candidate for matriculation must take the university's entrance examination, responsions. This is held four times each year and consists of three parts: (1) Latin, Greek; (2) Holy Scripture, English, French, German, Italian, Spanish; (3) mathematics, natural science.

A candidate is required to pass satisfactorily one subject in each group and four subjects in all, or both subjects in parts one and three. Satisfactorily passing this examination admits to candidacy for the degree of Bachelor of Arts.

Candidates for the degree of Bachelor of Medicine must possess a bachelor's degree in some other subject. Most of them follow a course of studies leading to the degree of Bachelor of Arts in Physiology.

A new school or course—philosophy, psychology and physiology—has been instituted recently. (Physiology also will include studies in biochemistry and histology.) The satisfactory completion of this course also will lead to a degree of Bachelor of Arts. It is anticipated that many medical students will elect to follow this program.

Students seeking admission to the university who have had more than the required minimum of preliminary education may take in addition to the regular examination for the bachelor's degree, the preliminary examination in natural science. It is required of them that they pass the examination in biology, physics and chemistry in order to enter upon the medical courses.

Students at Oxford participate freely in the various social, athletic and intellectual activities of the colleges and enjoy a rich cultural experience during their years in residence.

Student health services are arranged by the various colleges. In general, though they are encouraged to have physical examinations including x-ray examinations of the chest, there is no regularly organized program. Students are now covered by the National Health Service Act for all illness or disability.

CURRICULUM

The course of study in medicine is of six years' duration. The academic year is divided into three terms, each of about eight-week duration: (1) Michaelmas, beginning the second Sunday in October; (2) Hilary, beginning the first Sunday after January 14; (3) Trinity, beginning the last or last but one Sunday in April according to whether Easter falls late or early.

The examination previously described for entrance to candidacy for the degree of Bachelor of Medicine corresponds to the first M.B. examination given in the London schools.

Two examinations for the degree of Bachelor of Medicine are given subsequently. The first, corresponding to the second M.B. in London, is given at the end of the third year of preclinical study. It covers the subjects of organic chemistry, human anatomy and human physiology.

The second examination is given upon completion of the clinical studies. It admits the student to the registry and practice of medicine.

Until 1937 the medical school at Oxford was devoted primarily to the preclinical studies. From 1937 to 1939, as a result of the Nuffield Foundation grants, a school of clinical research and postgraduate studies developed. During the war, as a result of the bombing and dislocation of the schools in London, undergraduate clinical instruction was introduced. Immediately following the war and with the reestablishment of the London schools, there was a decline in undergraduate work.

Subsequent to the report of the Goodenough Committee and with the coming into effect of the National Health Service Act, the undergraduate program was reestablished and is now on a permanent basis. The enrollment in the clinical years is less than in the preclinical because over half of the students completing these latter years, of necessity as well as desire, go to the London or other provincial schools for their clinical work. Upon satisfactory completion of their clinical studies, such students return to Oxford University for their degrees.

The quota for entering medical students presently is set at 65. In the clinical years classes of 25 students are accepted annually. It is anticipated that this number will be increased in the near future.

The student is introduced to the clinical work through two terms (six months) of study in pharmacology, therapeutics, general pathology and bacteriology. During this period he also attends lectures in clinical anatomy and physiology.

Following this introductory period, the clinical curriculum is similar to that at other English schools. Clinical-pathological and clinical-biochemical conferences have been introduced. These represent a departure from the programs at other schools.

GRADUATE EDUCATION AND TRAINING

Ample opportunities are provided for graduate study and research in all fields of science and also in the clinical branches of medicine. The degree of Doctor of Medicine is awarded upon presentation of an acceptable thesis, and that of M.Ch. (Master of Surgery) is based upon the results of an examination. The degrees of Bachelor of Science, and Doctor of Philosophy also are attainable after advanced study, and in the latter case, after presentation of a thesis which is based upon original work.

Each of the Nuffield clinical departments is conducting an active research program and offers opportunities for advanced study. The Nuffield Institute for Medical Research is chiefly concerned with the application of radiology to biological research. Special techniques have been devised and others are in process of development.

POSTGRADUATE TRAINING

Postgraduate training of two types is offered:

(1) For those preparing for the specialties. This is the usual program providing for training through hospital service in the various specialties as junior registrar, registrar and senior registrar, and is of three or more years' duration.

At Oxford, promotion to senior registrar is restricted to those who have earned higher degrees in medicine. Opportunity to take studies in the basic sciences is offered.

(2) An organized program for the continuing education of general practitioners. This program consists of lectures, ward rounds, clinics and discussion groups.

Courses of two-weeks' duration are offered as are weekly sessions throughout the year. Immediately following the war these courses were in large demand. Recently, however, there has been a marked decline in attendance. The opinion was expressed that, while the National Health Service Act made provisions for such courses, the formalities attendant upon taking such studies were too great.

An endeavor now is being made to eliminate much of the formality in the hope that the number in attendance will increase.

TEACHING HOSPITALS

Radcliffe Infirmary (550 beds) is the main teaching hospital. Prior to 1948, Radcliffe Infirmary was an independent institution having its own board of governors. By invitation the board included several representatives from the university and voluntarily provided facilities for clinical teaching. Under the National Health Service Act, the infirmary was transferred to the board of governors of the teaching hospitals and made a part of the United Oxford Hospital.

The United Oxford Hospital now consists of the Radcliffe Infirmary (550 beds), the Churchill Hospital (250 beds), the Osler Tuberculosis Sanatorium (90 beds) a convalescent hospital, and an Institution for the Chronic Sick and Aged—in all a total of 1280 beds. In addition Wingfield Hospital for Orthopedic Surgery, Stoke-Mandeville Hospital for Plastic Surgery and Littlemore Hospital for Nervous and Mental Diseases, though not designated as teaching hospitals and though operated under a separate regional hospital board, are used for some clinical teaching. The outpatient department at Radcliffe Infirmary provides adequate facilities in this division of clinical study.

While these clinical facilities are ample in size for the present undergraduate classes, it was anticipated that new construction, which has been planned, will make it possible to provide for larger classes (up to 100) and to take care of the postgraduate program.

VICTORIA UNIVERSITY OF MANCHESTER

The University of Manchester (technically Victoria University of Manchester) was founded by charter in 1880. It is an outgrowth of Owens College (established in 1851), and the Manchester School of Medicine, which united with Owens College in 1872. Subsequently, the university passed through several reorganizations. Its present charter dates from 1903. A number of associated colleges are included in its structure.

ORGANIZATION AND ADMINISTRATION

The university is comprised of nine faculties: arts, science, law, medicine, music, economic and social studies, theology, technology and education; several departments, including dentistry and pharmacy, and various other schools and divisions.

The control of the university is the responsibility of a court of governors. This is a large body which contains representatives of former students

(the convocation), the faculty, the local government and the general public. The court governs the institution through a council of its selection and a senate. The court meets semi-annually.

The council consists of the chancellor, who is elected by the convocation; the vice-chancellor who, in practice, is the chief executive officer; the deputy vice-chancellor, and 74 members who are elected by the court. The membership includes four representatives of the senate and two representatives of the members of the boards of faculties. The council meets monthly and as the executive body is primarily responsible for general policies, finances and administration.

The senate, of which the chancellor is chairman, consists of the professors and two or three others (at present the librarian and the heads of associated colleges). The senate is responsible for all academic affairs.

The school of medicine is an integral part of the university. Its faculty and student body are subject, in all respects, to the regulations of the university.

FACILITIES

The buildings, for the most part, are arranged in two quadrangles in the city. Erected within the last 50 years, they are substantial structures, though evidencing the lack of maintenance occasioned by the difficulties encountered during the war years. New construction in progress is part of a planned long-range program which it is anticipated will require 20 or more years for completion. At present some of the medical laboratories are crowded and inadequate for the large classes. Laboratories for bacteriology, pathology and preventive medicine are located at the hospital, approximately three-fourths of a mile from the school buildings. Athletic and recreational facilities are provided in a large building in the city and upon a site of 30 acres on the outskirts of the city.

The university library, containing well over 400,000 volumes, is housed in two buildings. The medical section consists of over 88,000 volumes and more than 300 journals and periodicals, and is readily accessible to the students and faculty.

FINANCES

A summary of income and expenditure for the entire university for the academic year 1948-49 may be found on page 34.

While separate figures for the faculty of medicine were not obtained, it was stated that whereas before the war the total governmental subsidy to the university amounted to only £93,000, that for medicine alone was now £115,000. The opinion was expressed that governmental support was probably now at the maximum that could be expected.

FACULTY

The medical faculty consisted of approximately 250 members including 29 professors, 12 readers, 125 lecturers and about 85 assistant lecturers, tutors and demonstrators.

The board of the faculty, which consists of 76 members including the vice-chancellor, dean, professors and elected members of the faculty, is immediately responsible for academic affairs in medicine.

The faculty contains men of national and international reputation and in general is of high quality. The compensation paid the faculty is the same as that established in other English medical schools and as set forth in the description of the London schools.

STUDENTS

Candidates for entrance upon the medical courses at the University of Manchester are required: (1) to have satisfied the requirements for entry upon a degree course. (The University of Manchester, Liverpool, Leeds,

SUMMARY OF INCOME

Endowments		£ 65,060	7.3%
For particular purposes	£39,577		
For general purposes	25,483		
Donations and Subscriptions		34,437	3.9%
Grants from Local Authorities		29,910	3.4%
Parliamentary Grants		562,004	63.3%
Fees for Tuition, Examinations, Graduation, etc.		177,519	20.0%
Other Income		18,240	2.1%
Total		£887,170	

SUMMARY OF EXPENDITURES

Administration		£ 53,041	6.6%
Departmental Maintenance		595,558	73.9%
Salaries of Teaching Staff	£408,452		
Laboratory Maintenance	158,819		
Libraries	24,055		
Museums	4,232		
Maintenance of Premises		102,639	12.7%
Other Maintenance		54,806	6.8%
Including Fellowships, Scholarships	11,079		
Grants to Student Societies	3,710		
Grants to Hostels	4,999		
Allocations to Reserves		64,000	
Total		£870,044	

Sheffield and Birmingham cooperate by means of a joint board in conducting the examination for such qualification); (2) to be holders of the higher school certificate. No exemptions are granted. However, those desiring to do so may take the first year examination and if successful may enter upon the second year of studies. Few students avail themselves of this privilege.

The dean stated that applicants number about 1000 for the 100 places in the first-year class. This large number is reduced to about 500 through the following restrictions:

1. No students from foreign countries are accepted.

2. No students from other divisions of the commonwealth are accepted if there is a medical college in that division.

3. Preference is given to those applicants whose homes are in the Manchester region and other regions in England that do not have medical schools.

Candidates are interviewed by the dean and the tutor in medicine who record their personal evaluations. The results of this interview are given considerable weight in the selection of matriculants, together with the student's previous academic record. Some difficulty is encountered because candidates are applying also at other schools.

No record has been kept of the number of matriculants who fail to complete the course. It was estimated that 75 to 80 per cent of those who begin the medical studies complete the program. Students who fail the second M.B. examination may repeat once. A second failure makes it necessary for the student to appear before a special committee which decides whether the student may make another attempt. The committee's action was reported as becoming more strict. In certain instances a student may be advised that he cannot continue as a degree student but may proceed with his studies as a candi-

date for the conjoint board certificate.

There are no provisions for housing students within the university precincts. However, a number of residence halls are licensed by the university, and students not residing at home or with responsible relatives are advised to live in one of these halls. Special attention is given to the housing of women students.

During the fifth medical year, students are required to live for a period of three months in Lister House, a residence hall on the grounds of the Royal Infirmary. During this period they are on call for work on the wards and in the casualty department of the hospital.

A central university union affords all students opportunities for many social and athletic activities. The cost to the student for the complete program in medicine will approximate £411. This includes fees for tuition, examinations, graduation, books, instruments and incidental charges. While there are but few undergraduate scholarships available at the university, a great majority of the students receive financial aid from local authorities. It was reported that the financial barrier to the study of medicine had been largely eliminated at Manchester as in other parts of England. The only obstacles remaining for the qualified student were the time element (six years) and the need for the student to contribute to the support of his family.

CURRICULUM

The course of study in medicine at Manchester is of six years duration. The school year is divided into three terms: Michaelmas, October 16 to December 20, 1949; Lent, January 10 to March 23, 1950; Summer, April 18 to July 8, 1950. After the third year when clinical instruction begins, the program of studies is practically continuous.

Four major examinations are given:

The first M.B., at the conclusion of the first year, covers the subjects of chemistry, physics, botany and zoology.

The second M.B. at the end of the third year covers the subjects of organic and physical chemistry, anatomy including histology, and physiology including physiological chemistry.

The third M.B. in December or April of the fifth year covers the subjects of pharmacology, pathology and bacteriology. These subjects, the study of which begins in the summer terms of the third year, continue in conjunction with clinical studies during the fourth and first term of the fifth year.

The final examination is given at the completion of the course (end of sixth year), and is divided into three parts.

Part I — Forensic medicine and toxicology, hygiene and preventive medicine.

Part II—Obstetrics and gynecology, pediatrics.

Part III—Medicine (including medical anatomy and physiology, therapeutics, pediatrics, diseases of the skin and mental diseases), surgery (including surgical anatomy and pathology, diseases of the eye, ear, nose and throat).

In the clinical years students have been divided into groups of twelve for bedside studies. It is felt, however, that this is too large a group and it is the intention to reduce the number to six and to utilize more fully beds that are available in the affiliated hospitals for clinical instruction.

In obstetrics the students are required to reside for two months at a recognized lying-in hospital, and in pediatrics for one month at a children's hospital. After some hospital experience in obstetrics, the students are assigned to patients for home deliveries. It is reported, however, that this service is decreasing because of the tendency to hospitalize an ever

increasing number of obstetrical patients.

Instruction in the outpatient department is not emphasized. Students are not required to attend though it was reported that most of them do so. Students do not participate in the examination of the patient, but only observe the clinician's work and hear his discussion of the clinical problem. This, it was recognized, is a weakness in the program. No plans for change were reported.

There is no organized course in social medicine though many of the topics usually included in such course are included under the headings of forensic medicine, hygiene and preventive medicine.

There is little opportunity for the undergraduate medical student to participate in research studies. The opinion was expressed that the objective of the school was to teach the fundamentals of medicine and that those students who were interested in research could undertake such work later.

GRADUATE EDUCATION AND TRAINING

The University of Manchester offers opportunities for advanced study leading to the degrees of:

M.D.—After two years of study, investigation and the presentation of an acceptable thesis.

Ch.M.—After five years of study and clinical experience as house officer and registrar and after passing an examination.

Ph.D.—After two years of study and admission of a thesis based upon original work. Few medical students qualify for this degree.

POSTGRADUATE TRAINING

Opportunity is offered for advanced studies in medicine, surgery, obstetrics, hematology, cardiology, orthopedic surgery and diseases of the ear, nose and throat.

Instruction through lectures and practical work under the same members of the faculty who conduct the undergraduate program is offered. The courses, however, are not as systematically organized as at some other institutions.

There has been comparatively little demand for this type of instruction. The opinion was voiced that under the present plan of medical practice in England, there was little stimulation or encouragement for the general practitioner to pursue such studies. The best type of postgraduate study was believed to be that offered through house-officer and registrar appointments in the affiliated hospitals. These positions, however, are rarely available to those doctors who have been engaged in general practice.

TEACHING HOSPITALS

The Manchester Royal Infirmary (647 beds) is the main teaching hospital. Though this institution dates from the 18th century, its present buildings were occupied in 1908. The hospital is of pavilion type; buildings, for the most part, are two and three stories in height and extend over 17 acres of land. Most of them are connected by open corridors.

Inpatients number approximately 11,000 per year; outpatients in excess of 56,000 attend the clinics each year, and the accident room cares for about 13,000 casualties annually. All of these patients are utilized in clinical instruction.

In addition, a group of 12 or more hospitals and clinics are affiliated for teaching purposes in pediatrics, obstetrics and gynecology, diseases of the eye, ear, nose and throat, tuberculosis, orthopedic surgery and dermatology. These institutions contain in excess of 1,600 beds and also provide extensive outpatient service. An abundance of clinical material drawn from this region of over 10 million people is therefore available to the school.

ALUMNAL ORGANIZATION

Upon graduation a student becomes a member of the convocation of the University of Manchester. Upon his request to be placed on the mailing list, he will receive communications on all matters affecting convocation. This is the official body of graduates of the university. It elects the chancellor and 15 representatives on the university court. It has authority to discuss and pronounce an opinion upon any matter that relates to the university.

It also serves to promote fellowship among the graduates and assist them to keep touch with the university. District groups have been formed in various large cities and an effort is being made to promote the organization. In many respects it is similar to the alumnal organizations found in American colleges and universities. However, it has not been divided into groups representative of the various faculties and schools of the university.

Convocation has not contributed materially to the financial needs of the university. There have been some small contributions—recently £2000 was given for a specific purpose.

RESEARCH

Active research work is in progress in all of the preclinical departments.

Research laboratories also have been established in some of the clinical departments. Experimental laboratories have recently been established for the staff in internal medicine and studies in renal-vascular diseases and hypertension are in progress.

Scotland

Two of the four universities in Scotland were visited: the universities of Edinburgh and Glasgow. Of the four, the University of St. Andrews dates from 1411, Glasgow from 1451, Aberdeen from 1494 and Edinburgh from 1583. The chair of medicine in the University of Aberdeen represents the oldest faculty for medical education in Great Britain. The school of medicine at the University of Edinburgh has long enjoyed a world-wide reputation for its excellence and is probably best known of the four institutions to the medical profession in the United States. Until recently there were three so-called extra-mural medical schools in Scotland: the school of medicine of the Royal Colleges at Edinburgh (which was absorbed in 1947 by the University of Edinburgh), and St. Mungo's and Anderson's medical schools (both of which have been absorbed by the University of Glasgow). This action has eliminated all schools of medicine other than the university medical schools.

The visitor to the Scottish schools early learns that medicine in Scotland developed within the framework of the university, quite contrary to the situation in London. There the development was from an independent apprenticeship through parent hospitals which only recently became affiliated with the University of London. Even at present the connection between the schools and the university in London is more nominal than organic. The effect of the university relationship in Scotland was particularly noted in the preclinical departments which have full university status. In the clinical departments, the situation encountered was not unlike that in London.

Though the heads of the clinical departments held full stature in the university, much use was also made of consulting surgeons and physicians. These were primarily members of the hospital staffs rather than university appointees.

THE UNIVERSITY OF EDINBURGH

The University of Edinburgh, known occasionally in earlier centuries as the College of James VI, but more generally as the College of Edinburgh or the Town's College, was founded in 1583 by the town council and gradually became known as the University of Edinburgh. It remained under the patronage and control of the town council until 1858 when all Scottish universities received new and autonomous constitutions. In 1889, the university court was constituted as a corporate body with full power over all property.

ORGANIZATION

The supreme administrative authority is the university court. This body consists of the rector, the principal, lord provost of the city and assessors.

The rector is elected by the student body. The post is largely an honorary one; the rector, although ex-officio chairman of the university court, seldom attends meetings of the court and takes little part in the management of the university. The chancellor is elected by the general council of the university, which is composed of the graduates of all the faculties.

The chancellor appoints a vice chancellor, whose sole duty is to confer degrees in the absence of the chancellor. The principal is invariably appointed vice chancellor.

The principal and vice chancellor (often the same person) are elected by the curators of patronage, of whom there are seven. This group is largely a vestige from the days when the institution was under control of the town council. Four of the seven curators are named by the town council and three by the university court.

The lord provost of the city is an ex-officio member of the court.

The 11 assessors on the court are appointed as follows: one by the chancellor, one by the rector, one by the town council, four by the senatus academicus, four by the general council of the university.

The university court is primarily concerned with general policies and questions of finance.

The senatus academicus, which consists of all professors, some readers and senior lecturers, governs all academic affairs.

There are six faculties: arts, science, divinity, law, medicine and music; several institutes, and research laboratories.

The library, founded in 1580, contains well over 500,000 volumes and consists of a central and a number of special book collections. It represents a broad and most valuable collection of literature of all types and is generally available to all students as well as faculty.

FACILITIES

There are three principal groups of buildings: the old college, originally designed by Robert Adam, but completed in a modified design by William Playfair in 1838; the more recent medical buildings, erected around a rectangular court, and the king's buildings, erection of which was begun in 1920. These latter buildings are located about one and one-half miles distant from the others on the outskirts of the city.

Plans are now in process of development for the remodeling of some parts of the medical buildings in order to provide additional teaching, laboratory and office space. New construction is also anticipated in the near future on land adjoining

the medical buildings and the Royal Infirmary.

FINANCES

The report of the University Grants Committee for the academical year 1948-49 provided the following data for the entire university:

SUMMARY OF INCOME

Endowments		£ 67,865	8.6%
For particular purposes	£49,531		
For general purposes	18,334		
Donations and Subscriptions		19,609	2.5%
Grants from Local Authorities		31,800	4.1%
Parliamentary Grants		410,074	52.2%
Fees for Tuition, Examination, Graduation, etc.		190,047	24.2%
Other Income		65,515	8.4%
Total		£784,910	

SUMMARY OF EXPENDITURES

Administration		£ 53,690	6.9%
Departmental Maintenance		544,213	70.3%
Salaries of Teaching Staff	£404,182		
Laboratory Maintenance	114,377		
Libraries	25,654		
Maintenance of Premises		74,073	9.6%
Other Maintenance		65,673	6.9%
Including Fellowships and Scholarships	8,056		
Grants to Student Societies	14,044		
Grants to Hostels	5,129		
Capital Expenditure from Income		36,253	4.7%
Allocation to Reserves		3,000	
Total		£776,902	

Separate figures for the medical school were not obtained. It was estimated, however, that of the medical school budget, about 65 per cent came through the University Grants Committee, 10 per cent from endowments (chiefly for specific purposes) and 35 per cent from fees of all types. The university operates upon the same quinquennial budget plan as do the other universities in England, Scotland and Wales.

FACULTY

The staff of the medical school consists of approximately 23 professors, seven readers, 75 lecturers, 25 assistants and a considerable number of surgeon and physician consultants at the various hospitals. Teachers in the preclinical departments, with rare exceptions, are medically qualified. This, it was felt, better fitted them for the instruction of medical students. The faculty of medicine consists of the professors and a number of readers and lecturers. Salaries are paid in accordance with the general scheme laid down by the University Grants Committee in respect to all British universities. Retirement is compulsory at 65 years of age or at the age of 70 in case of some appointments.

Appointments to chairs are made (1) by the crown, (2) by the curators of patronage, and (3) by the university court according to the date and terms of their foundation.

The medical faculty also carries responsibility for the instruction of dental students, whose studies during the first year are identical with those of medical students, for diploma courses in radiodiagnosis and radiotherapy, psychiatry, public health and industrial health, and tropical medicine and hygiene. Members of the faculty also participate

in the certificate course for sister-tutors (instructors in nursing). The departments of anatomy and surgery also participate in a course of instruction in medical illustration. The faculty of medicine also has assumed responsibility for teaching veterinary studies.

STUDENTS

Candidates desiring to enter the program in medicine at the University of Edinburgh must obtain an attestation of fitness from the Scottish Universities Entrance Board. This certificate is issued upon presentation of proper evidence indicating the required preparatory education: senior leaving certificate of the Scottish educational department or its equivalent or upon passing a preliminary examination as prescribed by the entrance board. Special regulations of equal strictness are prescribed for foreign (overseas) applicants.

In recent years qualified applications in excess of 1000 have been received. Approximately 200 places in the entering class are available. Selection of matriculants to fill these places is made by a specially appointed entrance board or admissions committee. It was reported that in 1949 approximately 360 applications were received from students in the United States. Because of the number of Scottish and English applicants, under present circumstances it is impossible to accept many overseas students. Foreign students, on first making application, are advised that only those with exceptionally high qualifications can have any hope of being successful.

There are accommodations for about 200 men and 400 women students in residence halls and hostels which are under control of the university court. For the majority of students, however, lodgings are found in inspected and approved accommodations in the city.

No regularly organized health service for students is operated. Routine x-ray of chest and tuberculin testing now are applied to all medical students. Periodical medical examination is available on a voluntary—not compulsory—basis.

University unions for men and for women have been established. These provide dining facilities and serve as centers for social and intellectual activities. A department of physical education provides for instruction and participation in various athletic sports. In addition, there are numerous societies and clubs providing for social and recreational activities.

During the academic year 1949-50, 1651 medical students (1239 men and 412 women) were enrolled. The entire student body numbered 5640.

The inclusive fee for the six-year course for the degrees of M.B., Ch. B. is £240 payable in annual installments of £40. In addition, other fees for matriculation and examinations amount to 52 guineas. A large number of fellowships, scholarships and prizes are available through competitive examinations or other methods of selection. As in the English schools many of the students receive assistance from the local authorities in Scotland so that the financial barrier to the study of medicine largely has been removed.

THE CURRICULUM

The academic year is divided into three terms of approximately ten weeks each: autumn term—October 4 to December 16, 1949; spring term—January 10 to March 17, 1950; summer term—April 18 to June 23, 1950.

After the third year, medical students are in continuous attendance until completion of the program except for official holidays and specially arranged short vacations.

The curriculum in medicine was extended from five to six years beginning in October 1948. The addi-

tional time, in large part, was devoted to courses which served as an introduction to the clinical work.

The first year is devoted to the study of chemistry, physics, zoology and botany (all are covered by lectures and laboratory exercises). In addition, during the second term a course on principles of scientific method is given. There are also seven lectures during the autumn term, under the heading, "Introduction to the Study of Medicine," to assist in orienting the student to the university and to his studies.

The year concludes with the first professional examination. It was stated that failures at this time may equal 20 per cent of the entering class (40 out of 200). Some may return for re-examination but there is a limit to the number of times a student can reappear for a professional examination.

The second and third years under the new program cover the subjects of anatomy, physiology, biochemistry, neuro-anatomy, histology and regional anatomy. Under the guidance of a committee, correlation between the teaching of anatomy and physiology has been instituted. This, it was stated, represents a distinct improvement. Similarly, instruction in physiology and biochemistry has been correlated to advantage.

The third year culminates in the second professional examination which is given in two parts: (a) anatomy and embryology, and (b) physiology and biochemistry.

Under the extended curriculum, the fourth year will be devoted to coordinated courses in medicine, surgery (largely didactic), pathology, bacteriology, materia medica, pharmacology and therapeutics. These courses also are under the direction of a committee representative of the departments involved. An examination in which most of these departments share will be given at the conclusion of the year. This will represent a third professional examination. Students in this year also are required to undertake a certain amount of clinical work.

The fifth and sixth years are devoted entirely to clinical study except for lectures and demonstrations in psychiatry, forensic medicine and public health including social medicine. Professional examinations are given in psychiatry in the spring and in forensic medicine and public health in the summer of the fifth year.

The final professional examinations in all other clinical subjects are given at the end of the sixth year. Satisfactory results in this examination lead to the award of the degrees M.B. and Ch.B., entrance upon the registry and privilege to practice medicine.

A tutorial system of instruction is followed. In the preclinical years tutorial classes meet weekly with tutors. A class may number 20 or more members. In the clinical years tutorial classes of 10 or 12 members meet for four or five hours each week with their tutors. Tutors are chosen from among the younger members of the teaching staff. In the clinical years they usually are serving as registrars in the teaching hospitals.

Bedside and outpatient instruction is carried on concurrently. Each service in the hospital has an outpatient service one day each week. Students on duty with the service (firm) attend the outpatient clinic on that occasion. They may follow the patient from clinic to hospital ward, but there is little opportunity for the student to follow the patient subsequent to dismissal from the hospital.

Prior to 1948 students were required to spend two periods of three months each in domiciliary medical service carried on through dispensaries in the city. Under the National Health Service Act the need for these dispensaries vanished. As a substitute for this plan a member of the clinical

faculty has assumed charge of a panel of 2000 patients and as chief medical officer operates this service as an outpatient department. Students are in attendance and may call upon patients in their homes. The plan is experimental. Some opposition from general practitioners has been voiced. However, believing in the importance of outpatient service in clinical teaching, the chief medical officer of the National Health Service for Scotland has given the plan provisional approval.

It is of passing interest to note that at Edinburgh the department elsewhere entitled pediatrics is known as the department of child life and health.

In the major clinical subjects all didactic instruction is given by regularly appointed members of the university faculty (full-time members). Clinical instruction at the bedside is shared. While the professors have direction and control of didactic and clinical teaching in their departments and the hospital wards under their charge, clinical teaching also is carried out in wards not under their charge by specialists not members of the professorial departments.

GRADUATE EDUCATION AND TRAINING

Ample opportunity is afforded for advanced study leading to higher degrees in all departments as well as through the various diploma courses previously noted. Special regulations prescribe the requirements for each of the higher degrees.

Graduate training in the various specialties is also conducted in the usual manner through appointment as registrar and senior registrar in the affiliated hospitals. The former grade of junior register is now replaced by that of senior house officer, which is a *staffing* grade not a specialist teaching grade.

POSTGRADUATE TRAINING

Postgraduate instruction in Edinburgh is conducted by the postgraduate board for medicine. It represents the university and the Royal Colleges of Edinburgh. Its board of 10 members is constituted of three representatives each from the Royal College of Surgeons (Edinburgh), Royal Colleges of Physicians (Edinburgh, and the University of Edinburgh. These nine members elect an independent chairman.

A postgraduate program has been conducted since 1906. Courses are offered in the medical sciences, medicine, surgery and obstetrics, and gynecology. These courses are offered twice each year and are of 12 weeks' duration. They are intended for those who are desirous of attaining specialist status. The course in the basic sciences bears no relation to those in the clinical subjects but is intended for those who seek to advance their general scientific knowledge and skill. It also is required as a primary course for those studying surgery.

In addition, refresher courses of two weeks' length for general practitioners are offered twice yearly. Those attending these courses receive transportation and a daily allowance from the government provided their attendance is approved. The general practitioner must arrange for his absence and locum tenens who, however, is paid by the government.

Postgraduate students receive instruction in the same hospitals and from the same staff as do the undergraduate students. Classes are scheduled to avoid conflict.

Though there has been considerable decline in attendance in the last one or two years from that experienced immediately after the war, the enrollment in each of the courses continues to be satisfactory—45 general practitioners (the maximum) were enrolled in the May 1950 course, 87 were registered for the course in medicine, quotas of 60 each are fixed for the courses in medical sciences and surgery. A limit of 20 students

is fixed for obstetrics and gynecology. Applicants come from all over the British empire and many foreign countries.

AFFILIATED HOSPITALS

The Royal Infirmary, Edinburgh (1154 beds), located immediately adjacent to the medical school is the main teaching hospital.

In addition, the following institutions are used more or less extensively.

Royal Edinburgh Hospital for Sick Children	203 beds
Simpson Memorial Maternity Pavilion —Royal Inf.	161 beds
Royal Victoria Hospital (Tuberculosis)	42 beds
City Hospital (Fevers and Infectious Diseases)	594 beds
Royal Edinburgh Hospital for Mental Disorders	500 beds
Banor Hospital	1168 beds
Southfield Sanatorium	68 beds
Princess Margaret Rose Hospital	170 beds
Eastern General Hospital	240 beds
Northern General Hospital	115 beds
Western General Hospital	334 beds

The latter three were municipal hospitals. Approximately 4,900 hospital beds are thus available to the university for clinical instruction. The Scottish National Health Service Act differs from that of England in that all hospital boards of management, including the teaching hospitals, are appointed by and act as agents of the regional hospital boards, of which there are five. In England, the teaching hospitals have boards of governors appointed by and responsible to the minister of health—not to the regional boards.

The board of management of a teaching hospital includes nominees of the university and of the teaching staff of the hospital to the extent of one-fifth of its membership.

Further, in order to safeguard the university's interest, the Scottish act provides for a medical education committee, one-third of whose members are nominated by the university. This committee advises the regional board on matters relating to the provision of clinical teaching facilities. Each regional board has a medical education committee.

ALUMNAL ORGANIZATION

The University of Edinburgh Graduates' Association was founded in 1924 as an alumnal association. It functions to maintain the interest of its members in the university. A journal is published semi-annually. Grants from the association's funds have been made in support of various university activities. No separate groups or sections representing the different faculties have been organized.

RESEARCH

Well equipped laboratories are available for research workers in all of the sciences and active programs are in progress. Special facilities are provided in botany, anatomy, anthropology, bacteriology, chemistry, physiology and pathology.

Advanced students conducting investigative studies were reported in all the basic science departments.

UNIVERSITY OF GLASGOW

The University of Glasgow was founded by papal bull in 1451 and was modeled on the University of Bologna. The charter from King James VI of Scotland was obtained in 1577. The institution was moved from the original site in the center of the city to its present location in 1870.

ORGANIZATION AND ADMINISTRATION

The university court is the supreme governing body. It consists of rector, principal, chancellor, lord provost of the city of Glasgow and 10 assessors.

The rector is elected by the general student body. The office is largely ex-officio and honorary.

The principal is appointed by the crown and also serves in ex-officio capacity.

The chancellor is elected by the general council which consists of all graduates of the university.

The 10 assessors are appointed: one by the rector; one by the chancellor; one by the lord provost and city government; three by the senatus academicus; four by the general council.

The court is primarily responsible for matters of general policy and finance.

The senatus academicus, which is in control of all academic affairs, consists of all professors, readers and a number of lecturers who are elected annually by the various faculties.

There are six faculties: arts, medicine, science, law, divinity and engineering; and two associated colleges: technology and agriculture.

The library, founded during the 15th century, contains over 380,000 volumes and is readily available to all students. In addition the Hunterian Museum, founded in 1783, contains many valuable manuscripts, anatomical preparations and zoological and mineralogical specimens. There are also valuable art and print collections.

FACILITIES

Spacious buildings erected upon an eminence (Gilmore Hill) overlooking the city were erected in and subsequent to 1870. Extensive renovation and remodeling was underway and new additions were under construction.

FINANCES

The University Grants Committee's report for the academic year 1948-49 is the source of the data (see below) for the entire university. No separate figures for the school of medicine were obtained.

FACULTY

Until 1947 the deanship of the medical faculty was held by one of the professors who was elected an-

SUMMARY OF INCOME

Endowments		£ 61,269	7.0%
For particular purposes	£ 38,610		
For general purposes	22,659		
Donations and Subscriptions		32,270	3.7%
Grants from Local Authorities		29,700	3.4%
Parliamentary Grants		517,300	59.2%
Fees, for Tuition, Examination Graduation, etc.		204,278	23.4%
Other Income		29,134	3.3%
Total		£873,951	

SUMMARY OF EXPENDITURE

Administration		£ 49,017	6.1%
Departmental Maintenance		536,614	66.9%
Salary of Teaching Staff	£ 386,850		
Laboratory Maintenance	128,029		
Libraries	19,483		
Museums	2,252		
Maintenance of Premises		93,839	11.7%
Other Maintenance		87,574	10.9%
Including Fellowships & Scholarships	7,974		
Grants to Student Societies	10,669		
Grants to Hostels	9,150		
Capital Expenditure from Income		35,497	4.4%
Allocation to Reserves		20,000	
Total		£822,541	

nually by the faculty. Since then, as a result of a number of factors, chief among which was the coming into effect of the National Health Service Act, the position has demanded the full time of an administrator. In consequence, the university court appointed Professor G. M. Wishart, (who had been dean for four years), as director of postgraduate studies, and the faculty has elected him annually since then as dean.

There are 24 professors on the faculty. The number of readers, lecturers and assistants was not determined.

The medical faculty is also responsible for the conduct of courses in public health, industrial health and dentistry.

STUDENTS

Regulations governing candidates seeking admission to the medical courses are similar in all Scottish universities and are briefly described in the section relating to the University of Edinburgh.

The problem of an excessive number of applicants is also present at Glasgow. For the 1949-50 entering class, over 700 qualified applications were received. There were many others who, however, were deficient in scholastic qualifications. Of these 700, 220 were enrolled. A committee of six members reviews all applications and in selecting matriculants gives consideration to: (1) scholastic attainment, (2) letters of reference from the head masters of the schools previously attended, and (3) interviews by the committee of all candidates. It was reported that under this method of selection the number who fail scholastically averages approximately 12½ per cent.

Five resident halls, four for men and one for women students, are operated by the university. These provide for approximately 200 men and 100 women. The great majority of students live in private lodgings.

Students' unions for men and women have been long established. These provide dining halls, common rooms and recreational facilities. Various athletic clubs are also available to the students at small membership fees.

An organized health service for students, with a full-time medical officer in charge, has been established. This service is available to those students who desire to use it. As in other instances students are beneficiaries of the National Health Service and in case of need may obtain medical and hospital service without cost.

During the 1948-49 academic year there were 1407 (1118 men and 289 women) medical students enrolled. The entire student body numbered 5889.

The inclusive fee for the medical course is approximately £320, which is payable in six annual installments.

CURRICULUM

The academic year is divided into three terms of 10 weeks each: (1) Martinmas—October 6 to December 16, 1949; (2) Candlemas—January 10 to March 17, 1950; (3) Whitsun—April 11 to June 16, 1950. After the third year, when students enter upon their clinical studies, their attendance is practically continuous.

Effective in October 1949, the curriculum was extended to 18 terms (six years). Previously it had covered 15 terms.

The curriculum is arranged in similar manner to that at the University of Edinburgh, though there has not been the same effort at coordination among the various courses. The tutorial system, as conducted at Edinburgh, is not followed at Glasgow.

The additional three terms, added recently, have been inserted in the program immediately preceding the final term. In practice, this has provided four terms (including a sum-

mer vacation) for intensive clinical study.

Professional examinations are scheduled after the first, third and fourth years. Final examinations in forensic and social medicine follow the 14th term. In the clinical departments they are given at the conclusion of the entire course of study.

GRADUATE STUDY AND TRAINING

The usual program is conducted for training in the special clinical branches through appointments as registrar and senior registrar in the hospital.

In addition, diploma courses are offered in public health and industrial medicine. Opportunity is offered to pursue advanced study leading to the degrees of Doctor of Medicine (M.D.) and Master of Surgery (Ch.M). Opportunity is also afforded for those who desire advanced study in the basic sciences.

POSTGRADUATE TRAINING

A postgraduate medical education committee was organized in 1944 primarily for the purpose of providing courses of clinical instruction for medical officers upon their demobilization from the military services. The committee has been continued and now provides refresher courses of short duration for general practitioners, and longer intensive courses in general medicine and general surgery for candidates seeking to qualify for higher diplomas in these subjects, also as the demand may arise for courses in other special branches of medicine.

AFFILIATED HOSPITALS

The Western Infirmary (625 beds) is immediately adjacent to the school. This is a well-arranged institution with large outpatient clinic. Special features include laboratories for the university professors of medicine and surgery and a modern, well-equipped ophthalmic department. Another affiliated institution is the Tenant Eye Institute, a self-contained teaching and research unit.

The following are the main hospitals utilized for clinical teaching:

The Western Infirmary	625 beds
The Royal Infirmary	913 beds
Glasgow Eye Infirmary	113 beds
Royal Hospital for Sick Children	310 beds
Royal Maternity Hospital	170 beds
Royal Samaritan Hospital	190 beds
Knightstown Fever Hospital	200 beds

In addition, the following hospitals also are used for some clinical teaching:

Victoria Infirmary	503 beds
Stobhill Hospital	1806 beds
Southern Hospital	1382 beds
Eye Nose and Throat Hospital	88 beds
Royal Samaritan Hospital (gynecology)	189 beds
Eastern District Hospital	290 beds
Western District Hospital	252 beds
Royal Mental Hospital	830 beds
Belvidere Infectious Diseases Hospital	644 beds
Ruchill Infectious Diseases Hospital	1015 beds
Robroyston Hospital (tuberculosis)	882 beds
Meanskirk Hospital (tuberculosis and orthopedics)	532 beds

RESEARCH

The preclinical science departments and several of the clinical departments afford excellent opportunities for research study. Active programs of investigation are in progress.

Sweden

There are four medical schools in Sweden:

1. The Medical Faculty of the Royal University of Upsala. (Founded in 1477.) (Kungliga Universitet i Upsala.)

2. The Medical Faculty of the Royal University of Lund. (Founded in 1666.) (Kungliga Universitet i Lund.)

3. The Royal Carolinian Medico-Surgical Institute in Stockholm (an independent institution founded in 1810). (Kungliga Karolinska Mediko-Kururgiska Institute.)

4. The Medical Faculty of the University of Göteborg (Gothenburg). (Göteborgs Högskola.) This university is also an independent institution which was founded in 1887. Medical courses were but recently initiated (1949). It is anticipated that clinical instruction will begin in 1951.

Two of these institutions were visited: the Carolinian Medico-Surgical Institute and the University of Upsala.

All the schools follow the same pattern of admission of students, curriculum and, in large measure, methods of instruction.

Students are admitted twice each year. Classes at Upsala and Lund are limited to 25 students each, at Stockholm to 50. Thus, at the long established schools 200 students enter upon the study of medicine each year. It was stated that classes at Gothenburg, for the present at least, will be limited to 30 students.

All of the schools receive governmental support. No tuition, except minor fees for breakage, etc., are charged the students.

The following description of the Royal Carolinian Medico-Surgical Institute, affiliated with the University of Stockholm, insofar as it pertains to the faculty, (appointments, privileges, compensation) and the curriculum would be equally applicable to the other schools.

THE UNIVERSITY OF STOCKHOLM (Stockholm's Högskola)

Stockholm's Högskola was founded in 1877 as a private school, having only a faculty of natural sciences. Subsequently there were added a faculty of law (1907), and a faculty of humanities and political science (1921). Since July 1, 1949, independent professional and technical schools in Stockholm have formed an affiliation with the Högskola under the name of the University of Stockholm. It is anticipated that in the course of time this organization will be more firmly united. At the present time there is a council of rectors (or presidents) and a chancellor elected from among the members of the council. Each school remains an autonomous unit except as it is controlled by governmental regulations. The Carolinian Medico-Surgical Institute is a member of this central organization, which in some respects is similar to the University of London.

THE ROYAL CAROLINIAN MEDICO-SURGICAL INSTITUTE (Kungliga Karolinska Mediko-Kirurgiska Institutet)

ORGANIZATION

The institute is an independent (private) organization supported by the state and city and private endowment. It is devoted entirely to medical teaching, research and service to patients.

Control of the institution rests in the hands of the faculty (professors) who elect one of their number as rector. He serves as chief administrative officer. The faculty likewise elects a dean annually from among its members. The dean presides at all meetings which pertain to academic affairs. There are, in addition, a number of committees charged with various responsibilities, upon which the rector and dean serve in ex-officio capacities.

FACILITIES

The institute occupies splendid, modern and commodious buildings located upon an extensive campus in one of the suburban sections of Stockholm (Norrbacka District). All of the

buildings have been erected during the last 20 years. Additional buildings were under construction at the time of my visit in May 1950.

The preclinical departments, also designated as institutes, are each housed in separate buildings which are approximately one-quarter mile distant from the clinical departments. These latter, designated as clinics, are housed in the large Caroline Hospital (Karolinska Sjukhuset, see later).

FINANCES

Detailed financial data was not obtained. However, the institution derives the major portion of its operating and building costs from governmental appropriations. Published reports indicate that for the academic year 1948-49 these appropriations amounted to 3,371,000 Kronor (approximately $675,000). This was exclusive of the cost of hospital operation. In addition, the reports indicated that endowment capital totaled 11,453,291 Kronor (approximately $2,290,660). This endowment capital was divided among 70 separate funds designated for general and specific purposes. Additional funds were also obtained from the Swedish Medical Research Council (a governmental agency) for the conduct of specific research projects.

FACULTY

Technically, the faculty consists only of those professors who hold crown appointments; of such, in the year 1948-49, there were 38 (four of these positions, however, were vacant).

The teaching staff, during 1948-49, consisted of 34 professors, two prosektors and demonstrators (14 positions of this rank were vacant) and 137 docents (lecturers and assistants). Of these latter, 10 held the title professor. These, however, were not crown appointments.

The compensation paid members of the teaching staffs was uniform in all of the schools in Sweden. A somewhat larger salary is earned by those in the clinical departments, through the compensation paid by the hospital for clinical service.

Professors (chiefs of clinical services and in some instances their first assistants) also have a limited number of private patients in the hospital, from whom they may receive fees for professional services. Such fees are in addition to regular salaries.

A pension plan, with retirement at 65 years of age, is in effect.

APPOINTMENTS

In the event of a vacancy in the position of professor, or when a new position of this rank is created, the fact is announced to the faculties of all the universities and the general medical profession. Applications are invited. These are of formal nature and disclose the applicant's biographical data and his professional and academic attainments. A special committee containing representatives of all the schools is appointed. This committee also may have representatives from the medical faculties of the schools in Finland, Norway and Denmark. The committee carefully reviews the applications of all candidates and may interview them. It then reports its recommendations to the faculty of the school concerned, listing the candidates in preferential order. In turn, the faculty after voting upon the candidates thus recommended, reports to the minister of education who then submits his recommendation to the king. The appointment is made ultimately by the king.

In the case of vacancies in the second and third ranks (docents and prosektors), the recommendation is made by the professor (head of the department) to the faculty. After affirmative vote it is transmitted to the chancellor of the university (rector in Stockholm), who makes the appointment.

Chairmen of departments have the privilege of choosing their assistants of all lesser rank.

In addition to its regular academic functions, the faculty of the Karolinska Mediko-Kirurgiska Institutet has the responsibility of awarding the Nobel prize in physiology and medicine. A special committee of the faculty spends much time reviewing and deliberating upon the nominations for this famous honor.

STUDENTS

Students are admitted to the study of medicine upon the basis of a matriculation examination taken upon completion of studies in the gymnasium. The examination is uniform throughout Sweden and is given at a specified time. Students failing to pass may repeat as often as they desire. The student, upon completion of the gymnasium, may be said to have had an education equivalent or somewhat beyond that of the American student who has completed two years of college study. The average age upon admission to the medical studies is 20 years, though some may be younger. There are no restrictions upon the number of women admitted. Usually they constitute about 20 per cent of the student body.

Applications for admission usually outnumber the available places in a ratio of three to one. Selection is made entirely upon the grades obtained in the matriculation examination.

There are no facilities for housing students in Stockholm. Various clubs have been organized through which student activities of diverse nature are carried on. Plans for the future contemplate the construction of a student union building.

An organized student health service is conducted. Physical examinations, including x-ray examinations of the chest and immunological tests, are performed. B.C.G. vaccinations are urged when indicated.

CURRICULUM

The academic year is divided into two semesters extending from September 1 to December 15, and from January 15 to May 31. There are a number of recognized holidays in each semester and a long (three-month) summer vacation.

At the present time the curriculum is divided into two rather sharply defined sections: (1) preclinical, three years; (2) clinical, four and one-half years. The entire program can be accomplished in a minimum of seven years. Most students require eight, and some take as long as 10 years.

Course examinations are given. In addition, a general examination leading to a certificate of medical candidate (Med. Kan.) is given at the end of the preclinical period. This certificate must be obtained before the student may enter upon the clinical courses.

Similarly, there are course examinations during the clinical years and a final examination which leads to the certificate of medical licentiate (Med. Lic.). This certificate admits the student to the register and privilege of practice. No degree is awarded.

No definite time is fixed for these general examinations. When he has completed the required studies and deems himself prepared, the student arranges the time with the professor for examination. He may, in case of failure, repeat the examination as often as he desires. Under this system there are comparatively few failures. However, one young instructor stated that approximately 25 or 30 out of every 100 students who began the program failed to complete it.

THE PRECLINICAL PERIOD

The first year, in general, is devoted to the study of morphology (anatomy and histology); the second year to function (physiology and biochemistry), and the third year covers the subjects of pharmacology, general pathology and bacteriology. There is

no coordination between any of these preclinical subjects, nor between them and the clinical divisions at the present time.

THE CLINICAL PERIOD

Clinical studies begin with one term of introductory (propedeutic) exercises. These consist of both lectures, demonstrations and practical work in physical diagnosis and attendance as observers at clinical sessions.

Subsequently, one year is equally divided between general medicine and general surgery. This is followed by two years of instruction in the special branches, including obstetrics and gynecology; diseases of the eye, ear, nose and throat; psychiatry and neurology; pediatrics; dermatology and venereal diseases, etc. The final year is devoted to work as an assistant in general surgery and general medicine, and in some respects simulates the American internship.

A review of the program indicates that the student's scheduled hours of class work were far less than those in American schools—sometimes not exceeding 16 hours per week.

It was also evident that much more attention is given to and time spent in the study of the various special branches in the Swedish schools. This, it was stated, is essential because of the nature of general practice in Sweden.

STUDY OF CURRICULUM

For the past two years an official commission containing representatives of all of the schools, the general profession and the student body has been engaged upon a comprehensive study of the curriculum. It was anticipated that a report would be published late in 1951 or early in 1952.

Among the changes that were suggested were the following:

—Reducing the length of the course, but adding a year of general internship.

—Improving the method of selection of students.

—Reducing the amount of time presently allotted to some of the preclinical subjects — particularly to anatomy.

—Providing for an integration of preclinical and clinical courses. A weekly conjoint clinic was suggested in which physiologist, bichemist and pharmacologist would participate. This would be in addition to the regular clinical-pathological conferences.

—The introduction of courses in general psychology in the preclinical years, and of social medicine in the clinical years.

—Reducing the time allotted to instruction in the special branches of medicine.

—Increasing the number of class hours per week.

Members of the commission expressed some doubt concerning the extent to which changes could be made because of the particular interests of some of the professors and the deeply rooted pattern that had been followed for so many years. It was understood that any extensive revision would have to have the approval of the Swedish Medical Association as well as of the several faculties and the ministry of education before it could be made effective.

GRADUATE EDUCATION AND TRAINING

For those who aspire to a position in the governmental services, in the public health service, in the provinces (läns) and hospitals, a period of at least eight months of hospital service after obtaining the certificate of Med. Lic. is required. This service is obtained through appointments as assistants for variable periods.

For those who aspire to practice in some special branch of medicine, a longer period of training is required (three to four or more years). There is no certification as specialist in

Sweden. However, there are specialty sections in the Swedish Medical Association, and election to membership in a specialty section is equivalent to such certification. Opportunities for such training are afforded through appointment as assistant on services in the university and other large community hospitals. The experience and training is similar to that obtained by residents in the American, and by registrars who serve in the English hospitals.

The degree of Doctor of Medicine is awarded by the Swedish universities to men who have pursued a course of study and hospital service of not less than two years after completing the undergraduate course. It also is required that the candidate shall have presented a thesis upon a research project or clinical study. This thesis must be presented and defended in public. Most M.D. degrees are awarded upon the basis of clinical studies. A few are awarded upon the basis of research in the fundamental sciences. Comparatively few M.D. degrees are awarded each year in Sweden.

POSTGRADUATE COURSES

Until recently few postgraduate or refresher courses were offered at any of the universities. An effort now is being made to establish programs offering opportunities for general practitioners to continue their studies. While the government offers compensation to the teachers, provides traveling expense and there is no loss of compensation for those attending such courses and no tuition is charged, it has been difficult to establish programs of this nature. Courses of three weeks' duration have been conducted at Stockholm and Gothenburg.

It was reported that some difficulty was encountered in securing a teaching staff and that doctors desiring to attend found it practically impossible to secure "locum tenena" during their absence from their practices.

TEACHING HOSPITALS

The Karolinska Sjukhuset (Caroline Hospital; over 1000 beds) serves as the main teaching hospital for the Karolinska Mediko-Kirurgiska Institutet. It is a splendid modern institution, exceptionally well appointed and commodious. Accommodations for both inpatients and outpatients are excellently arranged and equipped. There are separate large diagnostic radiological departments for medicine and surgery, and well equipped laboratories for both service and research on each of the services. The professors (chiefs of services and departments) have splendid suites of offices for themselves and their assistants. Ample provision has been made for undergraduate students. A well-equipped room is set aside on each nursing unit in which students may type their medical histories. Class and demonstration rooms are provided in each of the outpatient departments. A large and beautiful auditorium, complete with all modern facilities for lectures and demonstrations, occupies a prominent place in the institution. Lounges and dining rooms for staff and students are provided.

This institution represents the most modern teaching hospital it has been my privilege to visit. It excels in all respects.

In addition to the Karolinska Sjukhuset the following hospitals are also used to greater or lesser extent for undergraduate teaching: Sabbatsberg Sjukhuset, St. Erik's Sjukhus, Serafimerlasarettet, Nortullis Sjukhus, Kronprincessan Lovisa's Barnsjukhus, Stockholm's Epidemisjukhus, Göteborg's Epidemisiukhus.

These hospitals and their outpatient departments provide a great wealth of clinical material.

RESEARCH

The visitor to the Karolinska Mediko-Kirurgiska Institutet is early impressed with the extensive activity

of the staff in investigative work. An imposing list of their publications evidences the comprehensive scope of their studies. Ample funds from endowment income and adequate physical facilities are available.

In addition to the facilities provided the regular departments in the separate buildings and in the Karolinska Sjukhus, there are:

(1) Three separate institutes, one each for biochemistry, neurophysiology, and medical cytology, which have been erected by the Nobel Foundation. They were built out of funds derived from Nobel prizes that were not awarded and contributions from the government, the Wallenberg Foundation and the Rockefeller Foundation. They are supported in part by the Nobel Foundation, by governmental appropriations and by grants from the Medical Research Council.

(2) The King Gustave V Research Institute, which was erected by public subscription in commemoration of the king's eightieth birthday. The institute, still in process of organization under the direction of Professor Nanna Svartz, contains laboratories for physiology, chemistry and bacteriology, and special facilities for studies in virology. Well-equipped animal quarters have been provided. This institution is supported by direct governmental appropriation entirely apart from the general budget of the medical school.

THE SWEDISH MEDICAL RESEARCH COUNCIL

This council, patterned after the British Medical Research Council, was founded by the Swedish Parliament in 1945. The council contains representatives from all of the medical faculties. It is free to promote research upon its own initiative, and also to make grants to support particular projects. Through its activities new facilities have been provided, new professorships have been established and research activity in general has been greatly stimulated.

The program in medical education, research and the care of patients in Stockholm impressed the visitor most favorably. The staff was composed of outstanding men and women, especially in the chief positions. The younger assistants and the students were mature, serious and evidently earnest in the pursuit of their studies.

THE UNIVERSITY OF UPSALA—MEDICAL FACULTY

The organization of the medical school at Upsala (also at Lund) differs from that of Stockholm in that it is one of the faculties of the university. Therefore, medicine is integrated into the structure of the university in the same manner as are the other disciplines—theology, law, arts, sciences and the National Institute of Race Biology and Human Genetics.

The selection of students, the curriculum and the entire program follows the same pattern as at Stockholm. Faculty and classes are smaller. The buildings are old and most interesting from an historical viewpoint. The university hospital occupies buildings that are 80 years old. Large wards have been subdivided into units of six and eight beds. Though facilities are not modern, the equipment is in good condition and the housekeeping (as in all Swedish institutions visited) is splendid.

One interesting feature at Upsala not encountered elsewhere was the student nations organization. Students who have their residence in the same district of Sweden are organized into groups or nations. Each has its own clubhouse and follows traditions peculiar to the district represented. Membership in a nation is obligatory. The student advances in membership as he progresses through his years of study at the university. These nations control student discipline and conduct various student activities. The nations also form the alumnal organization of the university. Former members have contributed generously to their

groups, enabling them not only to build their clubhouses, but to provide scholarships and loan funds to their members. While a few of these clubhouses contain housing accommodations, most students live in rented rooms in approved quarters in the city. In those instances in which housing accommodations do exist, this nation system simulates in some respects the college system at Oxford. Its greatest disadvantage may be in the encouragement of provincialism among the students. It does provide for students who are following different fields of study to live together and, through such daily contact, to broaden their education.

The visit to Upsala, unfortunately, was limited to one day. The time was spent in making ward rounds with Professor Erik Ask-Upmark and in interesting and instructive discussions with him and the rector of the university.

Norway

Two schools of medicine are now in operation in Norway:

1. The Faculty of Medicine at the University of Oslo. (Universitet i Oslo.)
2. The Faculty of Medicine at the University of Bergen. (Universitet i Bergen.)

THE UNIVERSITY OF BERGEN

The University of Bergen was founded in 1948 through the merger of Bergen Museum (established in 1825), and the Municipal Hospital and State Gynecological Hospital. Faculties of natural science and the humanities had been organized at the Bergen Museum, and a faculty of medicine at the hospitals (the latter in 1946). During the academic year 1949-50, only clinical instruction in medicine, surgery, pediatrics, obstetrics and pathology was given. It was anticipated that instruction in some of the specialties would be given during the year 1950-51.

Students who have completed satisfactorily the preclinical studies at Oslo, to the number of approximately 30, may transfer to Bergen for the clinical courses.

The University of Bergen was not visited.

THE UNIVERSITY OF OSLO

The University of Oslo was founded in 1811 as The Royal Fredericks University (Det Kongelige Frederiks Universitet). It is governed by the acts of the Storting (parliament) and supported by the state. Within very general state regulations, the faculties of the university enjoy great freedom in administration and academic affairs.

There are five faculties: theology, law, medicine, philosophy and mathematical and natural sciences; and a school of pharmacy.

ORGANIZATION

The rector (chief administrative officer) is elected for a term of three years by the professors, docents and chief librarian. Any professor who has held his post for not less than five or more than 30 years is eligible for election as rector.

The academic senate, which exercises general control over all affairs of the university, consists of the rector and the deans of the five faculties.

Deans of faculties are usually elected for terms of three years by the respective faculties. Re-election

is permissible. At present, the elected dean of the medical faculty is serving as a rector, and a chairman, elected by the faculty, is functioning as dean of the medical school.

Eight student committees, operating through a student's union (or central committee), assist the rector in the administration of the university. The committees represent the students enrolled in theology, law, social economy, medicine, philosophy, social science, physical science and pharmacology. These committees, which are constituted legally, handle all student discipline, social welfare and general student activities. They receive all matriculation fees plus 10 Kronor per student from the university, and were reported to be well financed.

FACILITIES

The old buildings of the university occupy a campus in the central portion of Oslo, and at present accommodate the humanities and the department of anatomy.

New buildings have been erected and others either were in the course of construction or had been planned upon an extensive site provided by the Storting (parliament) in a suburban section of the city (Blindern). The sciences — botany, chemistry, physics, physiology, zoology—and the school of pharmacy were occupying modern quarters on the new campus. Pathology, bacteriology and the clinical departments were located in the Rikshospitalet.

Medical students found it necessary to travel considerable distances because of this wide separation of buildings. Arrangement of the curricula schedule compensated in part for this difficulty.

The university library contained well over one million books and there were, in addition, a number of valuable collections of literature. The medical library—a separate unit—was readily available to faculty and students.

FINANCES

The university is supported entirely by the government. The regular budget for the academic year 1950-51 proposed an appropriation from the ministry of education of approximately 10,450,000 Kronor (at exchange rates May 1950—$1,480,000) for the university, the library and the school of pharmacy. Out of this total the salary budget amounted to 6,100,000 Kronor. Salaries for instructional and technical staff in the medical faculty totaled 641,000 Kronor and an additional 155,000 Kronor were appropriated to cover expenditures for material and supplies. Maintenance of facilities must be added to this amount, but the exact amount cannot be given.

The budget further proposed an appropriation from the ministry of health and social welfare for the operation of the University Hospital (Rikshospitalet) totaling 11,800,000 Kronor (net subsidy, see page 57), out of which 184,500 Kronor are to be paid to assistants in the clinical departments engaged in teaching.

FACULTY

The teaching staff consisted of the following: professors, 22; docents, 3; prosektors, 16; scholars, 9; other grade, 44; total, 94. A uniform schedule of salaries for each of the various ranks was in effect. Most of the teachers in the clinical divisions are appointed by and receive their salary from the ministry of education, but are paid an additional remuneration from the ministry of health and social welfare for their services to the hospital. Other members of the hospital staff are paid on the hospital budget but receive an additional amount from the university for teaching.*

*In Norway, only those physicians who hold hospital appointments may attend patients in the hospitals. For this service they are paid salaries by the hospital owners, most often municipality, province or the state. For private practice (in offices and patients' homes) they receive payment on a fee for service basis from the health insurance fund.

A retirement plan was in effect. Pensions amount to approximately 50 per cent of salary. Retirement is compulsory at age 70.

The medical faculty was said to have a greater degree of independence than the other faculties. It had its own secretariat whereas the others had a combined secretariat which tended to hold them to greater uniformity in practice.

STUDENTS

Three courses of study are offered in the secondary schools or gymnasia: Latin, English and mathematics. While these courses are similar in many respects, the latter curriculum contains more science. Only those who complete the mathematic program of study are eligible for admission to the medical courses. At the present time some 800 or 900 students apply annually and classes of 50 students are matriculated twice each year. Selection is based entirely upon the grades students obtain in the matriculation examination. This system was not regarded as satisfactory in that it placed too great weight upon grades alone and tended to develop too much competition for grades among students. Serious consideration was being given to the situation and a change in method was anticipated.

The average age of matriculants was 18 plus years. No tuition was charged. Fees for examinations, etc., were nominal.

The students were well organized under each of the faculties. They operated a students' bank, largely supported by the government, through which loans without interest were obtainable. Women students comprised approximately 12 per cent of the student body.

CURRICULUM

An official committee was organized in October 1946, to undertake a comprehensive study of the medical curriculum. This body consisted of eleven representatives of the following organizations:

The faculty of medicine, Oslo—4; the county (or provincial) hospital —1; Oslo Municipal Hospital staff—1; teaching staff at Bergen—1; Norwegian Medical Society—2; elected by students—1; director of public health (ex officio)—1.

After a comprehensive study, including visits to other countries and many discussions within the faculty, a new curriculum was adopted in February 1950. The revised plan of study was to become effective with students matriculating in August 1950 and also for those starting clinical work.

The new curriculum provided for a reduction in total time from seven years or longer to six years. Time previously allotted to some courses (example—anatomy) was reduced and the academic year, particularly in the clinical years, was increased in length by four weeks. New courses were introduced (examples—terminology, Latin, psychology, social medicine), and the emphasis on some courses was shifted. The number of hours devoted to didactic instruction was reduced and more time assigned to practical work in laboratory, hospital and outpatient departments.

Eighteen months of compulsory internship were to be required upon completion of the medical courses. This period was to be divided as follows: (1) hospital service—six months in internal medicine, six months in surgery; (2) practice as assistant to medical officers of health and also engaged in private practice—six months.

The new curriculum provides for the following:

First Division—two and one-half years:

First year — general chemistry, anatomy, psychology, physical chemistry, biology, statistics, philosophy and Latin (terminology).

One and one-half years—anatomy, physiology and physiological chemistry.

Second Division—two and one-half years—eight terms:

First Term (nine weeks): propedeutics (physical examination), bacteriology, general pathology, psychology and social medicine.

Second Term (13 weeks) (second to seventh terms inclusive are to be 13 weeks each): internal medicine, special (systematic) pathology, infectious diseases, epidemiology, x-ray diagnosis, pathological physiology, neuroses and psychosomatic illness.

Third Term: surgery, surgical first aid, special (systematic) pathology, pharmacology and toxicology, pathological physiology, anesthesia and psychosomatic illness.

Fourth Term: dermatology and venereal diseases, ophthalmology, special pathology, bacteriology and serology, pharmacology and toxicology, and psychosomatic illness.

Fifth Term: ear, nose and throat diseases; neurology; bacteriology and serology; pharmacology and toxicology, and psychosomatic illness.

Sixth Term: internal medicine, infectious diseases, tuberculosis, arthritis, physical therapy, bacteriology and serology, pharmacology and toxicology and psychosomatic illness.

Seventh Term: surgery, orthopedics, bacteriology and serology, pharmacology and toxicology, social medicine and psychosomatic illness.

Eighth Term: devoted to examinations in all subjects covered in the second division.

Third Division—one year:

First Term (four months): obstetrics and gynecology, pediatrics, psychiatry, hygiene and social medicine.

Second Term: (four weeks), practical work in pediatrics.

Third Term (four months): pediatrics, forensic medicine, psychiatry, hygiene, social medicine and x-ray diagnosis.

A final examination will cover the subjects taken during this last year.

Upon the satisfactory completion of the course of study, the student is designated as a Candidate in Medicine (Kand. Med.). No degree is awarded. There then will follow 18 months of prescribed internship before the candidate will be privileged to enter upon the private practice of medicine or seek appointment in a hospital.

The emphasis placed upon some of the specialties (dermatology; eye, ear, nose and throat, and psychosomatic medicine) was felt to be necessary because of the conditions prevailing in the practice of medicine in Norway.

It was stated that comparatively few students (less than 5 per cent) fail to complete the program. Examinations are regularly scheduled. Time is allowed for preparation. Students are permitted to repeat examinations three times. However, if they fail in one subject in the first year, they are required to repeat the entire year.

GRADUATE EDUCATION

Opportunities to pursue advanced study are available in both preclinical departments and in the teaching hospitals.

The degree of Doctor of Medicine is conferred only after several years of study, the completion of an independent research project and the submission of an acceptable thesis.

Competence in a special branch of medicine is recognized by election to a special section of the Norwegian Medical Society following the internship, one year of general practice and three or four years of additional training in a hospital.

POSTGRADUATE EDUCATION

Courses for general practitioners are regularly organized and conducted annually. Inasmuch as the general practitioners in Norway have no ready access to hospitals and are compensated for service through the national insurance fund, an effort is made to have them return to the uni-

versity every four or five years for refresher courses. It is said that this arrangement has been fairly successful.

AFFILIATED HOSPITALS

The Rikshospitalet (400-plus beds) is the main teaching hospital. The educational functions are under the direct control of the university, though its support comes from the ministry of health and social welfare. The general budget for the hospital for the year 1949-50 totaled 16,800,000 Kronor. Income from the insurance fund was 5,000,000 Kronor; thus, the net subsidy was approximately 11,800,00 Kronor.

The main portion of the institution is quite old and suffered from lack of maintenance during the long years of the occupation. Several new structures have been completed since 1945—these are splendid, well-appointed and modern buildings. A new Children's Hospital, the gift of the people of Sweden, was dedicated and placed in operation in May 1950. Extensive plans for replacements and additions have been prepared and work in this direction is under way.

In addition to the Rikshospitalet, the following institutions also are used in greater or lesser degree: Ulleval Sykehus (municipal), 2240 beds, Gaustad Sykehus, Radiumhospitalet, Reumatismesykehuset, Martina Hansens Hospital, Oslo Legevakt Sanit.

Ample hospital facilities are available for medical instruction. Large outpatient departments at Ulleval Sykehus as well as at the Rikshospitalet also provide adequate clinical material.

RESEARCH

Various institutes (anatomy, bacteriology, pathology, physiology, chemistry) afford opportunities for investigative studies. A state institute for public health, provided by the Rockefeller Foundation, operated under the director of health, also contains laboratories in which opportunities for research are available. Since the last war a number of scholarships have been provided by the government through which young men can pursue research projects. Nine such scholars are now attached to the teaching staff in the school of medicine.

A research council comprised of representatives from the biological and physical sciences has been organized. This council distributes funds which are derived in part from endowment income and in part from a tax levied by the government upon "tipping" (a gamble on sporting events) for research projects. Through this source, approximately 3,500,000 Kronor were available during the year 1949-50 for research in the university.

Active research programs were in progress in both preclinical and clinical departments. Research laboratories have been provided in the new surgical buildings and others are to be provided in other hospital buildings that have been planned.

GENERAL NOTES

The work of the university suffered serious interruption during the occupation. It was practically closed from 1942 to 1945. Many of the students were imprisoned in concentration camps in Norway and many were taken to Germany.

As a result of this interruption to the continuing supply of physicians and to the general depletion of the medical profession during the war, Norway has experienced a marked shortage of practitioners. Following the war, large classes (up to 100) were enrolled twice each year at Oslo, and the schools of Sweden (at Upsala and Lund) and Denmark (at Copenhagen and Aarhus) assisted in accepting some students.

The program, as presently outlined, in a few years will take care of this deficiency and then continue to provide an adequate number of

physicians to meet the nation's requirements.

Though the members of the medical faculty suffered severely during the occupation, the experience tended to draw them into a close-knit, cohesive unit and served to develop a splendid esprit de corps.

Denmark

There are two schools of medicine in Denmark: (1) Aarhus Universitet (University of Aarhus), and (2) Kφbenhavns Universitet (University of Copenhagen). The medical school at Copenhagen was visited.

AARHUS UNIVERSITET

The University of Aarhus, an independent corporation, was founded in 1928 and opened for students in 1933. It is governed by a board of directors of seven members. Three of these are appointed by the city council of Aarhus, three by the university association of Jutland and one is elected by the university council.

Academic affairs are controlled by the university council and in general follow the same pattern that governs the activities at the University of Copenhagen. Four faculties have been established: letters, medicine, economics and jurisprudence.

The medical faculty consists of 13 professors. In addition there are a number of lecturers and assistants. At present only the preclinical portion of the medical curriculum is taught. Students go to the University of Copenhagen and other approved hospitals for clinical instruction.

During the academic year 1948-49, about 400 students were registered in the preclinical courses which extend over three and one-half years. Plans have been made to extend the teaching within the next few years to include the complete program.

KOBENHAVNS UNIVERSITET

The University of Copenhagen, founded in 1479, is a governmental institution conducted under the direction of the minister of education. His interests, however, are primarily financial. It was stated that with respect to academic matters, he is guided by the recommendations of the konsistorium and its elected officers. The konsistorium is composed of 20 professors, elected annually by and representing the various faculties.

A president is elected bi-annually by the faculties and may be re-elected. Two terms of office are the usual limit. A vice president is similarly elected each year. He is not eligible for re-election. Deans also are elected annually by their respective faculties and are not eligible for re-election.

These officers and the members of the konsistorium form the administrative council which, subject to the laws and regulations, is responsible for all matters pertaining to the university.

Deans of faculties preside at faculty meetings (which are held monthly or more often) and represent their faculties on the central council. In other respects they have little authority. Five faculties have been established: theology, law, medicine, mathematics and natural sciences and philosophy. In addition there are a number of institutes, laboratories, libraries and museums.

FACILITIES

The university occupies a number of buildings located in various parts of the city. The oldest structures are situated in one of the oldest sections of the city, while those built in recent years are in the suburban or

better residential section. There is no central campus.

MEDICAL SCHOOL

Facilities: The medical school also is housed in a number of separate buildings. These, however, are grouped in the same general vicinity. The clinical departments are accommodated in the Rigshospital or National Hospital. The anatomical institute located not far from the hospital occupies a very attractive structure recently completed and splendidly equipped and appointed. Facilities for the preservation and exposition of anatomical specimens both gross and microscopic are particularly noteworthy.

Finances: The university is financed entirely by governmental appropriation. No financial data was obtained.

Faculty: Membership on the faculty of medicine is limited to the 27 professors who are also chiefs or cochiefs of the various departments.

The teaching staff, in addition to these professors, consists of 11 lecturers, prosectors and first assistants, two adjuncts, 11 clinical professors and 11 privatdocenter. This latter group consists of those who hold staff positions at various affiliated hospitals or special institutes.

Uniform salary schedules are in effect in all faculty grades. Members of the clinical departments receive compensation also from the hospital for their service to patients. In addition, all clinical professors devote approximately one-half of their time to consulting practice and have private offices in the city.

A pension system for professors, with retirement at 70 years of age, is in effect. The amount of pension paid varies, dependent upon the individual's years of service as professor and head of a department.

In the event of a vacancy in a professorship, a public announcement is made and applications are invited. A special committee is organized to review the applications and make recommendations to the faculty. All applicants receive a copy of the committee's report and have a period of one week in which to file an appeal or objection to the report with the faculty. However, in most instances the faculty will accept the committee's report and submit its nomination for the position to the university konsistorium, which, in turn, submits the nomination to the minister of education. He, in turn, submits the nomination to the king. Hence, professors at the University of Copenhagen all hold crown appointments.

Under normal circumstances, young men who obtain appointments as first assistants or lecturers will withdraw from the university if they do not attain the rank of professor by age 45. They then seek appointment to positions in other hospitals and engage in private practice.

Students: Students desiring to enter upon the study of medicine in Denmark are required to pass the studentereksamen after completing the studies in the gymnasium. Three curriculae or branches of study are offered in the gymnasia:

(1) "Old" (ancient) language, (which comparatively few select), (2) modern languages, (3) mathematics and science. Most of those intending to enter the study of medicine follow the latter program but in addition are required to have had some instruction in Latin.

All who qualify by passing this examination are admitted. There is no selection exercised. Approximately 300 students are matriculated annually and about 200 are graduated. The greatest number fail to pass or withdraw at the end of the first year. A further decline in enrollment is experienced at the conclusion of the preclinical studies (three and one-half years). There is very little loss among those beginning the clinical courses.

Matriculants average between 18

and 19 years of age. No tuition is charged except for some special courses. Fees for examinations and incidentals are nominal.

Students are well organized in councils under each of the faculties and in addition there are various clubs and societies for sports and other student activities.

Some dormitory accommodations are provided, but most of the students live in boarding homes in the city.

Student health service is limited to annual physical examinations, particularly with reference to pulmonary tuberculosis. B.C.G. vaccination is urged for all who have negative Mantoux reactions.

There is no preceptor, tutorial or counsellor system in operation.

Student-faculty relations are carried on formally between the student councils and the faculties. There is comparatively little in the way of informal relation between teacher and student.

Women represent about 10 per cent of the student body.

The Curriculum: The academic year is divided into two semesters: approximately September 1 to December 23, and February 1 to June 9. Actual teaching (lectures and laboratory work) is limited to a period of six months (three months in each semester). The balance of time is allowed for independent study or practical work. There is no required class attendance in most of the courses. Primary dependence in determining the student's accomplishment is placed upon the examination. In some courses in which there is no final examination, a certificate of attendance is required.

The first year of the program is devoted to courses in physics, chemistry, anatomy and philosophy. This year concludes with an examination which the student must pass satisfactorily before he can proceed. Approximately 30 per cent fail the first time—some repeat, others withdraw.

The second part of the first division (preclinical) of the program extends over two and one-half years and covers the subjects of anatomy, physiology and biochemistry.

The number of available cadavers is so limited that 10 or even 12 students are assigned to one cadaver for dissection. Practical work in dissection therefore is greatly restricted. Fortunately, the new anatomical museum is splendidly equipped for the display of gross and microscopical specimens to which the students have ready access.

Another final type examination concludes the student's work in the preclinical studies. Here again the examination must be passed satisfactorily before he may enter upon the clinical studies.

All preclinical subjects are taught as separate sciences—no correlation is attempted. The teachers, who are medically qualified, use medically related references in their lectures and demonstrations.

Emphasis was placed upon the fact that all instruction is given at the university level. The student largely is left to his own initiative and is free to proceed at his own pace. Examinations are given twice each year —the student sets his own time for examination within these limits and may repeat an examination as often as he chooses.

It is the custom for students to spend at least six months between the preclinical and clinical sections of the program in hospital service as volunteers, in paid positions as orderlies, or in some similar capacity. This period is regarded as one of orientation and apprenticeship in a medical atmosphere. The experience is deemed a valuable one in acquainting the student with hospital and professional practices. It is, however, regarded as an extra-curricular activity.

The second part (clinical) of the program extends over three and one-half years and consists of eight semesters of study.

During each of these semesters, lectures and laboratory exercises are concentrated within a period of three months and the remainder of the time is allotted for clinical work in hospitals, clinics or with practicing physicians. Some time is also available during the lecture periods for attendance at Rigshospital clinics.

First semester: morning hours are available for attendance at clinics. Students seek registration with various clinicians. The afternoon hours are devoted to courses in bacteriology, pharmacology, pathological anatomy and elementary surgery.

Second semester: clinics, as scheduled, in internal medicine, surgery, pediatrics; lecture courses in surgery, medicine, dermatology and venereal diseases and human genetics.

Third semester: clinics, as scheduled, in surgery and medicine in the hospital and outpatient department; lecture courses in surgery, medicine, dermatology, radiology and psychiatry.

Fourth semester: clinical work in epidemic diseases; lecture courses in medicine, surgery, otolaryngology, ophthalmology, pathological anatomy and pharmacology.

Fifth semester: lectures in medicine, surgery, hygiene, general pathology and pathological physiology; lectures and demonstrations in pharmacology. There are also exercises in vaccination and practical work in the outpatient departments.

Sixth semester: lecture courses in surgery, medicine, pathological anatomy, pathological physiology, hygiene, general pathology; demonstrations in pathological anatomy; exercises in prescription writing and question periods (quizzes) in pharmacology.

Seventh semester: clinical work in medicine, surgery, pediatrics; lectures in medicine, surgery, obstetrics and gynecology, surgical technique, and forensic medicine. Time also is allotted for obstetrical operations and for the student to live in the obstetrical division of the hospital.

Eighth semester: clinical work in medicine, surgery, pediatrics; lectures in medicine, surgery, obstetrics and gynecology and forensic medicine; a "manikin" course in obstetrics and demonstrations in forensic medicine.

Final examinations are divided into two parts. The first, which may be taken during the seventh or eighth semesters, covers the subjects of general pathology, pharmacology, hygiene and pathological anatomy.

The second part covers the subjects of medicine, surgery, obstetrics and gynecology, pediatrics and forensic medicine.

Examinations are given twice each year, during December and January and again in May and June. The student arranges with the head of the respective department for the time of his examination. The regulations prescribe that not more than one year may elapse between the examination in part one and in part two of the second division of the curriculum.

Examinations in the clinical courses are of oral, written and practical types. The final practical examinations in the four major clinical subjects are given publicly—other students, members of the faculty, the student's relatives and the general public may attend. The student, having been given an opportunity to examine an assigned patient and with the assistance of such x-ray and laboratory examinations as he may request, is required to present the case, defend his diagnosis, prognosis and the therapy he suggests.

The professor (head of the department) serves as examiner. Two censors (appointed by the minister of education) attend and may participate in the examination. Usually they do not ask questions but are required to submit an evaluation of the student's work. Their grades carry equal weight with that of the professor. Neither the professor nor the faculty have any part in the selection of censors. However, by long estab-

lished custom they are chosen for their competence and are usually chiefs of service at one of the nonteaching hospitals in the city.

A study of the curriculum has recently been made and an extensive revision is now in progress. The new curriculum will reduce the number of didactic lectures and endeavor to correlate those remaining with clinical work throughout seven of the eight clinical semesters. It proposes that only seven lectures per week shall be given during the eighth or last semester, and that no clinical work shall be required during this period. The student's time is thus to be freed for reading and study in preparation for the final examinations.

During the seven semesters, clinical work will be greatly expanded with increased attention being paid to the clinical clerkship in hospital wards and outpatient department.

Instruction in preventive medicine and public health is to be combined with that given in the medical clinics and with the courses in social and forensic medicine. A clinic in occupational diseases has been established recently under the direction of the professor of hygiene. Institutes of enzymatic physiology and electronic physiology also have been established. These provide opportunities for research and advanced study but not for undergraduate instruction.

Upon satisfactory completion of the curriculum the student receives a certificate as laege or practitioner of medicine.

One year of internship is then required before the student may receive his final or major certificate which permits him to enter upon the practice of medicine. No examination is required for this certificate. It is conferred upon satisfactory completion of the internship and admits him to the register maintained by the national health service.

GRADUATE EDUCATION

There is ample opportunity for advanced study and for research afforded in the various institutes and science departments at the University of Copenhagen.

For those who aspire to the degree of Doctor of Medicine, a period of six or seven years of study and research is customary. Such individuals usually spend three or more years in an institute or department in advanced study and research, being supported during this period by research funds. Subsequently, they may obtain appointments as assistants in hospitals and receive sufficient salary to support themselves and families. Their work is under supervision and rather constant scrutiny. A thesis covering research that contributes new knowledge is required. This thesis must be publicly presented and successfully defended. Publication is also required, the candidate bearing one-third and the university two-thirds of the cost. Only a few such degrees are awarded each year. The convocation at which the degree is awarded in person by the king is said to be a most formal, elaborate and dignified occasion.

It is impossible for anyone to become head of a major department in any hospital who does not hold the degree of Doctor of Medicine. On the other hand, anyone who holds the degree is privileged to teach and the university is required to provide the opportunity for him to do so should he so desire. Such privilege, however, does not constitute him a member of the teaching staff. The practice follows the old German custom.

Those practitioners who desire to limit their service and qualify in some special field in medicine must have engaged in general practice for at least one year, served as assistants in a hospital in the special field for three years and have had two additional years of experience in their specialty. They then apply to the scientific Danish Medical Association for recognition. The application is reviewed by a committee of six which

utilizes the services of two representatives of each specialty as advisers. There is no examination but the candidate's record and the evidence he presents is carefully considered. Only those who are officially recognized by this association may designate themselves as specialists.

POSTGRADUATE EDUCATION

A year of internship is now compulsory for the medical graduate. This must include service in medicine and surgery and one month in obstetrics if the graduate desires the privilege of engaging in obstetrical work. It has been proposed that the internship also include two or three months of service with a general practitioner though this is not to be compulsory.

Beyond the internship, postgraduate education for the physician is of two types:

(1) The Danish Medical Association annually conducts courses for general practitioners.

(2) Hospitals, including the hospital of the university, conduct special lectures, clinics and demonstrations to which members of the profession are invited.

It was reported that neither of these programs was very successful. The attendance at the annual course did not exceed 60 or 70 physicians. Prior to 1946 they were held only in Copenhagen, but now are being given in various cities. Efforts are in progress to improve the situation.

HOSPITALS

The Rigshospital, or National Hospital, with a capacity of 974 beds, is used as the main teaching hospital. In addition, the Copenhagen Municipal Hospital and several other hospitals in the city are used to lesser extent. Hospitals in other cities are approved for the service of students as volunteers, and in some instances for portions of the clinical program.

The Rigshospital is operated under the ministry of health, with a laymanager as superintendent. The medical affairs are controlled by a medical board of 17 members, of whom 16 are members of the faculty and for the most part are heads of departments. In 1948 the total operating expenses approximated 17 million Kronor. Of this amount the state furnished approximately 15 million Kronor. The balance was obtained from insurance funds and directly from patients.

The hospital, erected shortly after 1900, consists of 28 separate buildings, most of which are three stories high. All are connected by broad underground passages which afford easy traffic between the buildings in inclement weather. Buildings are designated for the major services, each of which has its own amphitheatre, laboratories, libraries and museums for the use of students.

There are three separate services in medicine and in surgery—two of each of these have approximately 120 beds for inpatients but no outpatient service. The third services in both medicine and surgery have only 24 beds each but cover all of the outpatient services. Inasmuch as medical records are entirely decentralized, this arrangement has not been found satisfactory. Under the new curriculum it is proposed to equalize the services and give each a share of the outpatient work.

There are two maternity departments having a total of slightly over 180 beds. One department is utilized for the instruction of medical students, the other for the training of midwives, for whom a course of one year's duration is conducted.

A separate building closely attached to the medical and surgical departments is used as a school for nurses. It provides accommodations for 40 student nurses. All other nurses in the hospital are housed in quarters in their respective departments.

Plans are in process of development to double the capacity of the hospital. Such enlargement will en-

able the faculty to retain more, if not all of the students under their immediate supervision. This should improve the clinical instruction materially. While there is ample clinical material in Copenhagen, at present there is not enough in the Rigshospital for adequate teaching of a class of 200 students.

As the Rigshospital is a national institution, it accepts patients from anywhere in the kingdom. All specialties are represented by the foremost men in their respective fields and many problem cases are referred for diagnosis and special therapy. The largest number of patients come from the city of Copenhagen. The admixture of problem cases and the more or less routine types of illness make for an interesting and instructive service for faculty and students.

ALUMNI ORGANIZATION

There is no formal alumnal organization and no regular program conducted for former graduates. However, the student council of the university, through a central office, operates a placement service that is very helpful to both students and graduates. It assists in locating positions for students during summer vacations and also calls the attention of graduates to opportunities for employment.

RESEARCH

Active programs in research are conducted in the basic science departments and their related institutes as well as in some of the clinical departments. This work is supported in part by funds appropriated by the state, from special endowment income and by grants from foundations. The Rockefeller Foundation, for example, has been very helpful in this connection.

GENERAL COMMENTS

The impressions gained at the University of Copenhagen were very favorable. Facilities, though limited because of the size of the student body, were excellent. The faculty was competent and able. Though the length of the course of study appeared to be too long (by American standards), the students appeared to be serious and intent upon their work. Though there appeared to be an excess of lectures, these were concentrated within two periods of three months each, the remaining portion of the year being free for clinical work or independent study. The freedom extended the student to progress as he deemed best in his own interests was noteworthy. One of the students, however, expressed the opinion that while this freedom served well for the most brilliant students, the majority would do better if the program had somewhat more rigidity and if there were closer direction and supervision of student studies.

The Netherlands

Faculties of medicine are established in four universities in the Netherlands:

1. Rijksuniversiteit te Leiden (University of Leiden), founded by William the Silent, Prince of Orange, in 1575.

2. Rijksuniversiteit te Groningen (University of Groningen), founded as a provincial university in 1614. It became a state university in 1813.

3. Rijksuniversiteit te Utrecht (University of Utrecht), founded in 1836 and reconstructed in 1892.

4. Universiteit te Amsterdam (University of Amsterdam), founded first

as a state university in 1632, reconstructed in 1887 and now maintained by the city of Amsterdam.

It was reported that in 1948, a total of 7084 students of medicine (5688 men and 1396 women) were registered in full attendance at these four institutions.

Governmental expenditure for higher education in 1950 was estimated at 40 million Guilders. This includes operation of the state universities and specialized colleges as well as subsidies to denominational and nongovernmental institutions.

Within the framework of very general regulations, each of the universities is quite autonomous. Within these general regulations, students also have considerable freedom in choosing their courses. However, the basic curriculum is controlled largely by the scope of the required examinations. Two general examinations must be passed by all students: candidaats and doctorandus. The latter, except in medicine, confers the privilege to practice a profession. In medicine, a final, or artsexamen, is required. A doctor's degree may be taken after subsequent study and the preparation and public defense of a thesis.

All of the above named institutions were visited except the University of Groningen.

THE STATE UNIVERSITIES

ORGANIZATION

The organization of the state universities (Leiden, Groningen and Utrecht) follows a uniform pattern. In general the ministry of education exercises control of the institutions.

In each instance there is a board of curators consisting of five nonteaching members who are appointed by the crown. The board serves as a general administrative board that is responsible to the minister of education for all financial and nonacademic affairs.

The control of academic affairs may be said to rest with the general faculty. The chief officer of the faculty, styled rector magnificus, is elected by the faculty. It is the custom for this position to rotate among the divisions of the faculty and for the incumbent to hold office for two years. Each of the faculties (theology, law, medicine, science, letters, etc.) has a dean who ordinarily serves a term of four years. At present this position is filled by election of professors in order of seniority of service. Under new regulations the deanship is to be filled by election on the basis of competency and the incumbent is to serve for a longer term.

The rector magnificus, together with the deans and a few other elected representatives, constitute a board of assessors which functions as the executive body of the faculty.

Laws and general regulations prescribe the admission requirements, general pattern and content of curriculae, method of examination, tuition fees and general conduct of the institutions. These regulations leave a large measure of autonomy to the individual institution.

FINANCES

The government provides 90 per cent or more of all financial support. About 10 per cent is derived from student tuition and fees. Capital funds are likewise furnished by the government. Salaries of professors are uniform (12,600 Guilders per year) and uniform salary schedules apply to all other members of the teaching staff, assistants and technicians. Professors know the budgetary allowances for their own departments but have no information concerning the budget of their division or of the entire university.

FACULTY

Technically, the faculty consists only of the ordinary professors (gewone hoogleraren) who are appointed by the crown.

In case of a vacancy or the estab-

lishment of a new professorship, the minister of education asks for the advice of the faculty concerned. Thereupon a special committee is constituted to canvass the situation. No applications are asked for or received. The country is not very large, the most likely candidates will be associated with one or another of the four universities so that the committee's task is not a very formidable one. Only under the most unusual circumstances would anyone who is not a citizen of the country be considered. The committee's deliberations are held entirely confidential. Having arrived at a decision, it is customary for the committee to submit three names, in order of preference, to the faculty and for the latter body (if it approves) to transmit these recommendations to the minister of education. He, in turn, submits his recommendation to the queen.

Professors retire at 70 years of age and receive pensions equivalent to 30 per cent of their salaries.

Other members of the teaching staff are appointed by the board of assessors upon the recommendation of the head of the department concerned.

It was stated that salaries generally were very low and difficulty was often encountered in filling positions with the most competent men. Members of the clinical staff were permitted to engage in consultative practice in order to augment their incomes. Professors in the preclinical departments, though medically qualified, were not permitted to engage in practice. Hence, in this area the greatest difficulty was encountered in recruiting the best men.

THE UNIVERSITY OF LEIDEN

FACILITIES

The preclinical departments are housed in separate buildings which are located on spacious and attractive grounds immediately adjoining the hospital and clinical departments.

The buildings are well constructed, the laboratories adequately equipped for instruction and research. The facilities, however, are at present greatly overcrowded. Classes must be divided into from three to five or more sections. This imposes a heavy teaching load upon a small faculty.

FACULTY

The official faculty consists of 22 professors. In addition, there are a small number of assistants and graduate students in the preclinical departments. The clinical departments fare somewhat better through the use of a larger number of clinicians and assistants in the hospital and outpatient department. The professorial staff is composed of competent men who are well regarded by their colleagues in the other universities. A number of them have achieved prominence abroad.

STUDENTS

The number of students admitted to the first year of study increased from 100 in 1920 to 200 in 1940, reached a maximum of almost 700 in 1945 (because of the backlog occasioned by World War II) and declined to 300 in 1950. Facilities, constructed to comfortably accommodate the classes of 30 years ago, are taxed to the limit to care for the present enrollment even though the classes are divided into sections.

There is no selection of students. The Netherlanders pride themselves upon the freedom of their educational system. Natives, as well as those from the colonies and students from other countries who can qualify on the basis of previous education, may gain admission to any of the faculties in the universities.

Students who have completed the six-year course in the gymnasium (section B which emphasizes science), the five-year course in the hogere burgerschool (Section B, science) or the six-year course in the lyceum, may take the school-leaving

examination. The successful passing of this examination confers the privilege of admission to the medical faculty at any of the universities.

At the time of entrance most students are between 18 and 19 years of age. Upon completion of the secondary schools, the student will have had somewhat more than the equivalent of two years of college education in the United States. He will have had instruction in Latin, French, German and English as well as in Dutch. Those planning to enter the medical courses will have had four years of inorganic chemistry, four years of physics and one year of organic chemistry.

Students in medicine are charged a tuition fee of 300 Guilders per year for five years of the seven-year course. They are exempt from this charge after the fifth year in order to equalize the cost of university education in the different disciplines. Medical students, however, are subject to additional fees of approximately 100 Guilders per year for laboratory courses.

STUDENT HEALTH SERVICE

Student health service for all students in the university is organized under a committee upon which there is both faculty and student representation. Participation in the service is voluntary. Those who enroll pay an annual fee of 2½ Guilders. In 1950, with a total enrollment of 4,600 students, about 3,600 were participating, providing a budget of approximately F.9000.

One half-time physician (member of the teaching staff) was employed. He was available for consultation on three afternoons and one evening each week. At the beginning of the school year other physicians were employed temporarily and psychiatric service was arranged on an appointment basis.

All new students were given a complete physical examination including x-ray examination of the chest. For the latter a small fee per student was paid to the University Hospital.

The service was entirely preventive and advisory in type. No immunological or curative services were performed. For these the students were referred to their family physicians. Most were covered by the local insurance associations.

Apart from this general student health service, medical students prior to entering upon their clinical studies were required to have a complete physical examination including chest x-rays and BCG reaction test. Immunization against diphtheria, typhoid, para-typhoid, smallpox and against tuberculosis (for BCG negative reactors) was strongly recommended but was entirely voluntary. Most students elected to follow the recommendations. Subsequently, all medical students are fluoroscoped annually by the municipal tuberculosis bureau.

STUDENT ORGANIZATIONS

There is a general university student organization and faculties of students under each division. Except for special occasions (such as the lustrum, a quinquennial event in which both faculty, students and civic authorities participate), there appears to be comparatively little interest in student activities. There are no fraternities or groups such as are found in American universities.

CURRICULUM AND EXAMINATIONS

The curriculum normally extends over seven years and is divided into two major sections. The sequence and content of the program is arranged as follows:

First year: physics, inorganic and organic chemistry, biology (including zoology and botany) and histology. Introduction to human gross anatomy and physiology (these last two subjects are not included in the examination).

Instruction in all subjects except anatomy and physiology is given by the faculty of science.

The year concludes with the propedeutic or first part of the candidaats examination. Students arrange to take the examinations during the month following completion of the instruction. It was reported that failures approximate only 10 per cent. Those failing may repeat the examination in 3-6-9 or 12 months, as they desire. Many students elect to spend two years in completing this section of the curriculum. There was complaint among members of the medical faculty that the examinations were not rigid enough.

Second and third years: instruction during these years covers the subjects of gross anatomy, microanatomy, physiology, biochemistry and general pathology.

The departments are quite autonomous in arranging the content of their courses and the method of instruction. There is little or no correlation between them.

This section concludes with the second part of the candidaats examination. No student may proceed to the next section of the program unless all parts of the examination have been satisfactorily completed.

Failure upon first attempt were reported to amount to 60 per cent or more. While there was complaint among the students, the faculty was firm in the opinion that standards must be maintained and that the large number of failures was due in part to laxity in the examinations of the first part.

Students are permitted to return for re-examination as often as they choose at intervals of 3-6-9 or 12 months. No set regulations prescribe what work must be done or whether the course of instruction must be repeated before the student may appear for re-examination. Some students repeat five or six times. About one half of those who fail the first examination withdraw.

Fourth and fifth years: during this third section (first clinical) the instruction covers the subjects of pathological anatomy, pharmacology, bacteriology and hygiene, internal medicine, surgery, psychiatry, obstetrics and gynecology and neurology. Instruction is primarily through didactic lectures and clinical demonstration. Students have little opportunty to participate actively in clinical work. The section concludes with the doctorandus examination which is given in two parts, with an interval of three weeks between parts one and two.

Examinations are of written, oral and practical nature. Students are examined individually by the professors who form two committees, one for each of the first and second parts.

A student failing in any one subject is required to repeat the entire examination in the part in which that subject is included. Approximately 30 per cent of the students are required to repeat one or the other of these examinations, but very few fail to qualify ultimately.

The successful passing of this examination gives the student the privilege of undertaking special studies, preparing a thesis and qualifying for the degree of doctor of medicine. It does not, however, confer the privilege of practicing medicine.

The doctorandus, or doctoral examination, is reported to be the most difficult of all the examinations in the medical program.

Sixth and seventh years: the sixth and seventh years are devoted to clinical work in the hospitals and outpatient departments. Instruction is imparted largely through ward walks or rounds, and observation in the outpatient departments. Participation in direct clinical work is afforded through co-assistantships. These are similar to the clinical clerkships in American institutions.

Because of the lack of hospital facilities in Leiden (also at Utrecht and Groningen), arrangements have been

made whereby some students may go to the municipal hospitals at Rotterdam and The Hague.

Two examinations, artsexamen, are given. The first, or semi-artsexamen, is given at the end of the sixth year and the second, or artsexamen, at the end of the seventh year. No degree is given upon the conclusion of the seven year program. The final examinations are rigid, practical in type and of one week's duration. The examinations are given by specially constituted state committees at each of the universities. The committees contain representatives from the staffs of city hospitals as well as the faculty. Candidates must present evidence of having had the required clinical experience and instruction in order to gain admission to the examination. Satisfactory grades must be obtained in each subject.

The satisfactory passing of the artsexamen confers the privilege to engage in the practice of medicine. The student is certified to the ministry of health and his name is inscribed upon the registry of physicians.

GRADUATE EDUCATION

Graduate education is of two types:

(1) That leading to the M.D. degree. The student may enter this program after the fifth year of the curriculum upon satisfactorily passing the doctorandus examination. This program, requiring study in the basic sciences, research, the preparation of a thesis and its satisfactory defense in public, requires a minimum of two years. The M.D. degree, however, does not confer the privilege of practice.

(2) That leading to proficiency in a special field. The student can only enter upon this program subsequent to satisfactorily passing the artsexamen at the end of the seventh year of the medical curriculum. The length of the program varies from three to six or more years among the special fields. Study in the basic sciences is required as well as clinical instruction and experience in the special fields in hospitals and outpatient departments. Opportunities are limited because of the restricted number of assistantships. Most of those who follow this program also become candidates for the M.D. degree. In the absence of any specialty boards such as are found in America, those who satisfactorily complete this training obtain recognition as specialists through admission to membership in the respective specialty section of the Netherlands Medical Association. Each candidate's application and credentials are subjected to careful review by a special committee. There is no formal examination. Physicians cannot qualify as consultants under the insurance funds unless they have been registered as specialists.

POSTGRADUATE EDUCATION

At Leiden the faculty of medicine, in collaboration with the medical association, conducts fortnightly lectures in internal medicine and surgery and in some of the specialties. Attendance, usually very good (200) at the beginning, wanes during the year to 80 or less. The lectures are supplemented with demonstrations and the presentation of new work resulting from research done locally and abroad.

Similar efforts are carried on at each of the universities and by the medical association in various cities.

The preclinical department staffs do not customarily participate in these lectures.

HOSPITALS

The municipal hospital, which has 650 beds, is used as the main teaching hospital. The institution is, in part, subsidized by the state because of its use for teaching purposes. Owing to the small number of beds, arrangements have been made to send some of the students (sixth and seventh years) to The Hague and Rotterdam.

At present these students return to

Leiden for their final examinations. Developments are now in progress whereby some of the clinical staff at Rotterdam Hospital will receive recognition from the university and thereby be able to participate in the final examinations.

LIBRARY FACILITIES

There is a medical collection in the central library of the university. This, however, is too inconveniently located to be of much value to the medical students.

Each department possesses a small library and reading room, but these are intended primarily for the members of the staff.

For the most part students make little use of the literature, depending primarily upon textbooks and their lecture notes for study.

RESEARCH

Research facilities for the preclinical departments are quite adequate, though the staff is small and teaching burdens are heavy.

Some funds for research are provided in the general budget. A small amount may be obtained from special funds and from some of the voluntary health agencies.

The government appropriates approximately F.1,000,000 per year for research. This fund is distributed by a committee composed of representatives of the various disciplines in the universities of industry. Grants are made on a project basis.

Funds are carefully husbanded in order to derive the greatest benefit from them. Active programs of investigation are in progress. In several instances skillful competent investigators were laboriously constructing apparatus because of lack of funds or skilled assistants.

ALUMNI ORGANIZATION

Since World War II an alumnal organization has been established at Leiden. Interest has been awakened and there is promise of successful development. Some small contributions have been made. There is no placement service for graduates. However, some service in this connection is afforded by the medical association and some privately by the clinical professors.

UNIVERSITY OF UTRECHT

Time permitted only a one-day visit at the University of Utrecht. Conferences were held with the dean, professor of pathological anatomy and two first assistants in obstetrics and pediatric psychiatry. A quick tour of the grounds, buildings and several laboratories was made.

The University of Utrecht, like that at Leiden, is a governmental institution. Its organization and program of instruction follow a similar pattern.

Among the differences that might be cited are:

(1) The addition of a professor of social medicine to the faculty and emphasis upon this subject.

(2) The inclusion of four professors of dentistry in the faculty of medicine, and the conduct of courses for dental students.

(3) The addition of an internist to the department of psychiatry, thus reversing the practice not infrequently encountered in other schools. This has been done in the hope of interesting the internists and surgeons in the psychosomatic aspects of disease.

(4) The establishment of a division of pediatric-psychiatry in the department of pediatrics. While there are several well-organized child guidance clinics in the Netherlands, this is the only such division in a university.

Though the buildings at Utrecht are not modern, they are well constructed and were no doubt adequate for the smaller number of students that were enrolled before the war.

In recent years there has been great overcrowding, and the small staff has carried a very heavy teaching load. As an example, the department of pathology, consisting of the professor,

a prosector and four assistants, performs between 300 and 400 autopsies and instructs classes that number between 200 and 300 students each year. Instruction is carried on by means of lectures, demonstrations, museum study and the study of prepared slides. Of necessity, the class must be taught in three or more sections. Despite this heavy schedule, the professor was engaged upon the construction of interesting plastic erosion models of the bronchial and circulatory systems of the lungs, and similar models of the circulatory systems of the liver and kidneys.

It was reported that the fourth year classes numbered in 1945-46—723; 1946-47—365; 1947-48—287; 1948-49—236; 1949-50—191. This compares to a registration of about 145 before the war. Though there has been a steady decline, it was the general opinion that there were too many students, that many entered the program who were not qualified, and that there was need for the development of a better method of selecting medical students.

UNIVERSITY OF AMSTERDAM

The University of Amsterdam is maintained by the city of Amsterdam and controlled, so far as general policies and finances are concerned, by a college of curators of eight members appointed by the city government.

A college of rector and assessors is in charge of academic affairs. This body consists of the rector magnificus, the secretary of the senate and the deans of the faculties of theology, law, medicine, natural sciences, letters, economics and political and social sciences. All members of this body are elected by the senate of the university or by their respective faculties. The senate consists of the professors of all faculties.

FACILITIES

There is no central university campus. Buildings, however, for the most part are located within comparatively short distances from each other, except in the case of medicine. The preclinical departments in medicine are situated in the same general vicinity, but the two main hospitals are quite widely separated from each other and from the preclinical departments. This operates to the inconvenience of both faculty and students.

Though not modern, buildings were generally in good repair. Facilities in medicine were overcrowded because of the large increase in the size of classes. Plans for new buildings have had to be long delayed because of the lack of capital funds.

There is a central library which houses a large medical collection and ample reading and study rooms for students. There are also departmental libraries, primarily intended for the staff, to which students may have access upon request to the head of the department.

FINANCES

Financial support is furnished by the city of Amsterdam and in part is derived from tuition and fees and some government subsidy. There are a number of special funds or beurzen available to students for financial assistance.

FACULTY

The medical faculty consists of 15 professors (gewone hoogleraren), two associate professors (buiten gewone hoogleraren), and one extraordinary professor (bijzonder hoogleraar). In addition, there are seven private docenten and 23 assistants on the teaching staff.

Professors have indefinite tenure. Retirement is at 70 years of age. The salary scale is uniform with that at the state universities (Fl. 12,600). A contributory scheme for pensions is in effect, with maximum benefit fixed at F. 4,800 per year. This was said to provide insufficient income for man and wife and was the subject of considerable discussion.

Vacancies in professorships are filled by recruitment either locally or from other Dutch universities. The plan followed is the same as that described for the University of Leiden, except that appointment is made by the city council. The council certifies the appointment to the state minister of education for the approval of the queen. Appointments, however, are not crown appointments as is the case at the state universities in the Netherlands.

Clinical professors all have the privilege of conducting private practice and they do so. However, because of the heavy teaching load their incomes from this source have been reduced since the war. Professors cannot take private patients into the two teaching hospitals but must use other private institutions in the city.

Preclinical professors, though medically qualified, may not conduct private practice. For this reason and in view of the low salaries, it is becoming more difficut to fill these positions and to recruit young men for the basic medical sciences.

The faculty at Amsterdam was comprised of able, competent men, a number of whom have excellent international reputations.

STUDENTS

The same general regulations as described for the University of Leiden and as prescribed by the ministry of education govern the admission of students. There is no selection of students entering the medical program.

Tuition and fees amount to F. 335 for five years and only F. 10 per year thereafter.

At the present time (1950), there are approximately 240 students divided into four sections in the fourth and fifth years of the program. The rate of attrition after these years is low. Normally about 100 students complete the final or artsexamen at Amsterdam each year.

STUDENT-FACULTY RELATIONS

Whereas heretofore the relations of students to faculty and teaching staff have been very formal, efforts have recently been undertaken to improve the situation at Amsterdam. Discussion groups of 20 students or less, under the sponsorship of assistants, have been organized. Students also have organized weekend trips to hostels with both assistants and professors as their guests. These jaunts provide opportunity for closer acquaintance and for general discussions upon a wide variety of subjects, and have been materially helpful in improving student-faculty relationships.

OTHER ACTIVITIES FOR AND BY STUDENTS

The university operates a central refectory at which students may obtain substantial and nourishing food at nominal prices.

There is a student housing project which, however, is entirely inadequate. Fortunately, most of the students come from the city and can live at home.

A student cooperative also has been organized and it is proving helpful in meeting some of the housing problems.

STUDENT HEALTH SERVICE

An organized health service has been established. Students cannot register without a certificate evidencing that they have passed a satisfactory physical examination. Immunological tests, (including Mantoux), are given. Immunization (on a voluntary basis) is provided, including B.C.G. vaccination.

STUDENT ORGANIZATIONS

There are many student clubs and societies which are very active. Students are participating in plans for the reorganization of the teaching programs. In this they are working closely with the faculty and are proving to be helpful.

CURRICULUM

The curriculum in medicine closely follows the general program as outlined for the University of Leiden.

The academic year is divided into two terms of approximately 13 weeks each, during which instruction is given. The second term is then followed by a period of independent study in preparation for the examinations.

Students have considerable freedom as regards attendance at lectures and demonstrations. Attendance requirements at laboratory exercises is somewhat more rigid. Primary dependence, however, is placed upon examinations for promotion and advancement. Examinations are both oral and practical and are quite rigid.

It was reported that about 30 per cent of those entering fail to complete the medical program.

The curriculum is normally of seven years' duration. The first year, covering physics, chemistry and biology, is taught by the faculty of natural sciences. The second and third years cover the preclinical subjects and conclude with the second part of the candidaats examination. The greatest attrition in number of students occurs at this time.

The fourth and fifth years cover most of the clinical subjects. Instruction during these years is largely didactic. There are demonstrations and opportunities to observe in the hospital and outpatient departments, but except for a practical course in physical diagnosis there is little active participation in clinical work.

This section of the curriculum concludes with the second and final doctorandus examination. The sixth and seventh years are very largely clinical, corresponding to the clinical clerkship in American schools. The student carries little responsibility for the care of the patient. He serves as co-assistant in hospital and outpatient department, and follows a prescribed rotation of service in the clinical departments.

Clinical facilities under the direct control of the university are not sufficient to provide adequately for the large number of students who are presently in these years. Though arrangements have been made for them to go to certain other approved hospitals, many have to interrupt their studies until places can be found for them. It is anticipated that this situation will improve materially in a few years.

Though at present the majority of the students do the clinical work of the sixth and seventh years in non-university hospitals, the final examinations are given by the faculty at Amsterdam. Here, also, the same methods are followed as at Leiden.

GRADUATE EDUCATION

The opportunities for graduate education, while more numerous at Amsterdam than at Leiden, follow a similar pattern.

The student may interrupt the regular medical program after the fifth year and undertake studies in the basic sciences, including research, which may lead to the M.D. degree.

After completing the seven year program he may also continue his studies in a special field of medicine in fulfillment of the requirements for registration as a specialist.

POSTGRADUATE EDUCATION

No organized program of postgraduate instruction has been established. Members of the faculty cooperate with the medical association and give lectures, clinics and demonstrations upon invitation for the general profession. No opportunities have thus far been provided for practical work by general practitioners.

HOSPITALS

The Binnengasthuis, having approximately 650 beds and located within the confines of the old city, and the Wilhelmina-Gasthuis, with 1500 beds and on the outskirts of

the city, are utilized as the main teaching hospitals. Both institutions are operated by the municipal health department. In several departments there are dual services. In one the medical staff is appointed on recommendation of the university and is responsible for both service and teaching. In the other the medical staff is appointed by the city council on recommendation of the board of health and is responsible for service only. Patients are admitted to these institutions through the agency of the health department.

The university services have the privilege of requesting the admission of patients presenting the type of illness in which they may have particular interest.

Though the university does not have direct control of the hospital, the fact that it is also a municipal institution facilitates the arrangement. The municipality pays the salaries of the entire medical staff, either through the department of health or the department of education.

Where there are duplicate services —one in each hospital as in medicine and surgery—there are virtually two heads of the departments. Only one of these, however, will hold the title of professor on the faculty.

Plans for the closing of the Binnengasthuis and the transfer to the Wilhelmina-Gasthuis were made 25 years ago. The lack of funds to make the plans effective and the war precluded the development.

RESEARCH

Each department, preclinical and clinical, possesses facilities for investigative work and is carrying on an active program. Funds and staff are greatly restricted, but the amount of funds and consequently of research work is increasing.

ALUMNI ORGANIZATIONS

In 1948 there was organized the Civitas Academica der Universiteit van Amsterdam. This organization, consisting of the university senate, the general student body and graduates of the university, superseded the university society (an older organization), and is actively undertaking a program in support of the university. Thus far its efforts are supported only by membership fees. Various work committees have been formed, and it is anticipated that material benefit will accrue to the university through their activities.

GENERAL NOTES

While the graduates of the Netherland's medical schools appear to compare favorably with those of the schools of other countries, it is generally conceded by the members of the faculties that the curriculum is too heavily weighted with didactic lectures. It would appear that one year at least could be cut from the program by introducing practical clinical work earlier and eliminating many of the lectures.

The schools are overcrowded and the faculties are carrying very heavy teaching loads. The method of examination imposes unusual burdens upon the faculty. It is probable that the institution of a selective process of admitting students and a change in method of examination would materially improve the situation. Attention was called to the studies made by Professor Dr. G. Revesz (which were published in the "Nederlandsch Tijdschrift voor de Psychologie"), which dealt with the problem of the selection of students. These studies also called attention to the economic loss to students and to the university that was occasioned by the large attrition in the classes due to academic failures.

The situation pertaining to the supply of physicians in the Netherlands is at present greatly confused because of the Indonesian problem and the taking over by the new government of the University of Batavia. Plans had been developed looking toward the graduation of about 600

physicians annually—approximately 150 at each of the four universities. These plans contemplated that some of the graduates would go to Indonesia and other Dutch colonies overseas. Now that men no longer are willing to go to Indonesia and are hesitant about going to other points overseas, and others are rapidly returning from those regions, the problem of overcrowding of the profession in the Netherlands is developing.

The State Commission for the Reorganization of Higher Education

This commission was established by the minister of education, arts and sciences in April 1946. It consisted of 90 members and with some overlapping was divided into 22 sections, each dealing with a specific section of higher education. Sectional reports were discussed by a central coordinating group. Sectional reports were summarized into one report which was submitted to the minister in June 1949.

The report presents a comprehensive review of the task of the universities and technical schools and offers a number of suggestions.

The section on medicine (10 members), with representation from the four universities and the general profession, held 40 meetings and called upon a number of consultants for assistance. In addition to the program of medical studies, this section also dealt with dentistry, pharmacy and anthropology.

The medical section called attention to the need for developing a selective procedure in the admission of students and suggested limiting the number of times a student could appear for re-examination after failure.

Though there was no recommendation for reducing the length of the curriculum, it was suggested that there be certain readjustments, with less didactic and more practical work in the earlier years, and a final intern year in which the student had greater responsibility for the care of the patient. Suggestions were made for additional teaching in psychology and social medicine, for the introduction of more free time for elective study and for the transfer of the teaching in the first year to an inter-faculty organization comprised of the members of the science and medical faculties.

The major proposal concerned the establishment of specialized curriculae for four groups, each with a special final examination (doctoral):

1. The material necessary for biochemists, biophysicists, histologists, anatomists and physiologists.

2. The material necessary for pathologists, bacteriologists and clinical chemists.

3. The material necessary for hygienists.

4. The material necessary for clinical specialists.

The proposal further suggested that after the doctoral examinations in these areas, further scientific study in the field concerned would establish the individual as a specialist. In the clinical area, the training of specialists would be entirely under the control of the universities. In the nonclinical areas, the further study would lead to a degree which also would recognize the individual's special attainments.

Upon reference to the faculties of the four universities, the report met with varying degrees of acceptance. It was understood that each faculty of medicine was undertaking its own study and was making certain changes. The report was not accepted in its entirety by any university.

Belgium

There are four universities with medical faculties in Belgium:

1. Université Catholique De Louvain or Katholieke Universiteit Te

Leuven (Catholic University of Louvain).

2. Université De Liege (University of Liege).

3. Universiteit Te Gent (University of Ghent).

4. Université Libre de Bruxelles (Free University of Brussels).

The medical schools of these universities were visited, and a visit also was made to the Prins Leopold Institut Voor Tropische Geneeskunde (Prince Leopold Institute of Tropical Medicine in Antwerp).

Though the curriculae and methods of teaching in these medical schools are similar, their organization differs. For this reason, it is deemed best to describe them separately.

All are governed by general laws and regulations pertaining to institutions of higher learning and to medical education. Within these regulations each institution exercises considerable autonomy.

UNIVERSITÉ CATHOLIQUE DE LOUVAIN KATHOLIQUE UNIVERSITEIT TE LEUVEN

The Catholic University of Louvain is the oldest and largest of the Belgian medical schools.

Founded in 1425, in accordance with a papal bull of Pope Martin V, the university originally was an aggregation of colleges similar to the universities of Oxford and Cambridge, England. At one time there were 39 such colleges under the university. These colleges were disbanded during the French Revolution. Some were not reestablished subsequently. The university was reorganized in its present form in 1835. The date of the establishment of the medical faculty is not clear.

The university is an independent, sectarian institution and consists of six faculties: (theology; canonical law; law; medicine, including dentistry, pharmacy and physical education; philosophy and letters; and science), and a number of institutes and schools.

The university is owned by the Catholic church and is governed by a council of six bishops (of Belgium) which has ultimate authority.

The chief officer under the council is the rector magnificus who is appointed by the council. He holds permanent tenure. A vice rector, appointed by the council, also holds permanent tenure.

The deans of the faculties are chosen annually by their respective faculties.

The deans of the faculties, the presidents of some of the institutes and special schools, together with the vice rector and the general secretary of the university, form the rectoral or academic council.

The vice rector, secretary general, professors of the university and the presidents of the colleges form the academic senate.

The council of bishops and the rector magnificus determine all policies governing the university.

The vice rector and the rectoral council are charged with the administration of financial affairs. The vice rector also is responsible for the discipline and correction of students.

FACILITIES

The buildings of the university are not grouped upon a central campus but are located in various parts of the city. In general, the preclinical facilities are situated in the same general vicinity within easy walking distance from each other. Visits were made only to the departments of physiology and Flemish biochemistry. Though not modern, the buildings appeared to be in a fair state of repair. Accommodations for students were limited though probably adequate inasmuch as the classes are taught in sections.

FINANCES

No data relative to financial support was obtained. In general funds

are derived from tuition and fees, from the Catholic church and from the government. Governmental subsidy was said to amount to approximately 50 per cent of the budget in the nongovernmental universities.

FACULTY

Practically all members of the preclinical faculty are full-time appointees while comparatively few of the clinical faculty devote all their time to teaching.

So far as could be determined, the full-time teaching corps consisted of the following:

PRECLINICAL:	French	Flemish	Both	Total
Professors	11	9	7	27
Professor Agreges	1			1
Charge de Cours	3	3		6
Suppleant	1			1
Maitre du Conference	1			1
	17	12	7	36

CLINICAL: (presumably not on full-time appointment)				
Professors	5	4	4	13
Charge de Cours		1		1
Maitre de Conference	4	5	1	10
	9	10	5	24
		Total		60

There are others of lesser academic grade (assistants, etc.) who participate in the teaching, but it is evident that this faculty carries a very heavy teaching load. Little time is available for research.

The professors constitute the official faculty. They hold indefinite (or permanent) tenure. Retirement is fixed at 70 years of age with pension amounting to full salary. Full-time professors receive salaries of 450,000 Fr.

FACULTY APPOINTMENTS

Vacancies occurring in the faculty are largely filled by promotion from the lower ranks of the teaching staff.

Instruction is carried on in both the French and Flemish languages. Classes are divided into two sections according to language. Likewise, with a few exceptions in the basic sciences, there are two separate faculties.

STUDENTS

Students may enroll in any faculty of the university upon presentation of a certificate of graduation from a secondary school (athenee, lycee, or free (Catholic) college), or upon satisfactorily passing a general entrance examination given in Bruxelles under the ministry of education Few students gain entrance by this latter method. Athenee or lycee are public or state schools.

During the year 1949-50, the sizes of the various classes were as follows:

	French	Flemish	Total
Entering or 1st Candidate Class	175	175	350
2nd Candidate	80	75	155
3rd Candidate	140	136	276
4th—1st Doctorat	113	95	208
5th—2nd Doctorat	129	114	243
6th—3rd Doctorat	91	125	216
7th—4th Doctorat*	63	49	112
	791	769	1,560

*This reduced number because of the war

It was stated that the normal class would average about 120 students in each section in the latter years of the course.

Women students average from six to eight per cent of the total.

It also was stated that students in attendance represented 35 countries; that approximately 10 per cent of the students were foreigners, and that Hindus, Mohammedans and other non-Catholic religions, were included in the group.

Women students are required to live in the university's dormitories. Housing facilities for men will accommodate only about one-sixth of the students. Others live in approved dwellings in the city.

There is an organized health service for all students. Annual physical examinations are provided.

There are student organizations for the general body of students, also in the various faculties. Various ac-

tivities including those of recreational type are conducted.

The university posseses funds for student aid which may be granted upon a scholarship or loan basis.

CURRICULUM

In general the curriculum follows the pattern found in all Belgian universities. There are minor variations.

The first year of instruction is carried on by the faculty of sciences. It includes the following subjects: philosophy (logic), physics, botany, geology and physical geography, analytical geometry, general chemistry.

First candidate examination: the subsequent six years are under the faculty of medicine. The curriculum is arranged in the following order:

Second year: embryology, systematic human anatomy, histology, physiology, biophysics, zoology, biochemistry.

Second candidate examination: third year: experimental psychology; philosophy; systematic human anatomy; topographical anatomy; dissection; biochemistry; physiology, general and special sense; comparative anatomy.

Third candidate examination: fourth year (first clinical): general pathology; pharmacology; general therapeutics; pathological anatomy, gross and microscopical; autopsies; special medical pathology and therapeutics; general surgical pathology and therapeutics; pathology and therapeutics of surgical specialties; bacteriology; immunology and parasitology; propedeutics (physical diagnosis); medical and surgical polyclinics.

First doctorat examination: fifth year (second clinical): medical and surgical polyclinics; public and personal hygiene; special medical pathology and therapeutics; special surgical pathology and therapeutics; obstetrics, theoretical and clinics; neurology, theory and clinics; dermatology and syphilology, theory and clinics; pharmacodynamics; radiological diagnosis, medical and surgical.

Second doctorat examination: sixth year (third clinical): questions of science and religion; medical dentistry; legal medicine; medical and surgical polyclinics; obstetrical clinics; gynecology, theory and clinics; pediatrics; opthalmology; ear, nose and throat diseases; dermatology and syphilology; psychiatry; neurology; urology; x-ray diagnosis and therapy; physiotherapy; regional anatomy; minor surgery; stomatology.

Third doctorat examination: seventh year (fourth clinical): This is primarily a year of clinical instruction. Students serve as interns in the university hospitals. In addition, optional courses are offered in: genetics; experimental pharmacodynamics; hematology; nutrition; neurology; obstetric and gynecologic complications; special dermatological therapy; opthalmology; ear, nose and throat diseases; speech disorders; stomatology and maxillofacial surgery; anesthesiology; biology of physical education; social medicine; pathology of labor; colonial hygiene; mental hygiene, and history of medicine.

Fourth and final doctorat examination: the curriculum is heavily weighted with didactic instruction. There are reasonably adequate hospital and outpatient facilities but except for the final year, the student is primarily an observer rather than a participant in the care of the patient.

There are 12 courses listed in the first preclinical year, 12 in the second and 10 in the third. Some of the laboratory or practical sessions are of three hours, others of four hours duration. This develops a crowded program for the students.

As previously indicated, the clinical courses, except for the final year, are heavily weighted with didactic teaching. Fourteen courses are listed in the catalogue for the first clinical year, 13 for the second and 26 for the third. In addition, 18 optional courses are noted for the fourth year.

There is little or no attempt at any correlation of teaching in the clinical

years. Each professor is free to develop his course without reference to others. Despite the multiplicity of courses the rather narrow restriction of subject matter may avoid much duplication. The student's time is fully occupied in attending classes, leaving almost no time for independent study. It would appear, however, that little of the vast detail that can be included in a medical curriculum is omitted.

The academic year extends from October 9 to July 13 (1949-50), and is divided into two semesters. Formal instruction ends on May 31, the remaining time being allotted for review in preparation for examinations. There is great reliance placed upon these examinations. Little opportunity exists for independent study and none for participation in investigative studies. The courses follow prescribed texts and the professors' concepts of the desired content. There is no attempt at any coordination among the courses. This was reported to be the case even between courses in the same subject taught by different professors in French and Flemish. A professor who teaches in both languages must be prepared to instruct students of differing preparation when they enter his classes. This further increases the labor of teaching.

LIBRARIES

In addition to the famous central library of the university, there are 14 other faculty or institute libraries, including one for biology and one at the university clinique. The central library is in process of rebuilding. For the second time in a span of 30 years the collection of literature is being rebuilt. The subsidiary libraries are intended for the faculty and advanced students. Though undergraduate students may have access to them, the heavy program provides little opportunity for them to consult the literature. The student spends his time studying the assigned textbooks and his lecture notes.

GRADUATE EDUCATION

Programs of advanced study leading to a diploma of specialist have been established in a number of the special fields in medicine. These are combined with assistantships in the hospitals and vary from two to four years in length.

Higher degrees also may be obtained through advanced study and research in the basic medical sciences.

POSTGRADUATE EDUCATION

There is no organized program at the university for the continuing education of the general medical profession.

AFFILIATED HOSPITALS

The clinical facilities consist of:

1. The university clinics (universitaire klinieken) building which houses various departmental laboratories.

2. The university-owned St. Peters Hospital (St. Pieters Gasthuis), 570 beds and outpatient department. Service and instruction in this hospital are conducted in the Flemish language.

3. The city-owned and operated l'Hospital St. Pierre, 250 beds and outpatient department. (Service and instruction conducted in French.)

The medical staffs of these hospitals are composed entirely of physicians appointed by the university. Plans have been developed to increase each hospital to somewhat over 600 bed capacity; also to construct a tuberculosis sanatorium of 240 beds and a mental disease hospital of 900 beds adjacent to the university. These two institutions are to be owned and operated by the ministry of health and staffed by the university.

The present hospitals are well constructed and well equipped. By American standards they do not afford the amount of clinical material desired for classes of the size that are now enrolled. This also is true of

the number of patients attending the outpatient clinics. The shortage of clinical material is recognized and reflected in the plans that have been developed for expansion.

ALUMNAL ORGANIZATION

There is a well organized society of former graduates. This organization has contributed in small measure to the support of the university.

RESEARCH

The heavy teaching load carried by the faculty precludes extensive research activities. However, some of the men do find time for investigative studies. They also are able to supervise the work of assistants and advanced students. Moderate support for such work is provided in the regular budget, but the greatest amount is derived from special funds.

An interesting brochure entitled, "The University of Louvain During the Second World War," describes the tribulations encountered by the authorities, faculty and students. The university was abandoned for a few months in 1940. The library was destroyed for the second time on May 17, 1940. Subsequent to the German occupation on May 28, 1940, instruction was resumed but with great difficulty. From the spring of 1943 until the liberation of Belgium in September 1944, no formal instruction of freshman students was permitted. Many members of the faculty and student body participated in underground and maquis activities, and there was material interference with the educational programs throughout the war.

The University of Louvain is an internationally famous institution. It has suffered grievously through the destruction caused by two world wars and the difficult economic situation following them. Its faculty of medicine is well regarded in Belgium and though its medical facilities are inadequate for the number of students enrolled, the members of the faculty are earnest and conscientious in performing their duties.

UNIVERSITE DE LIEGE (University of Liege)

The University of Liege was founded in 1817; reorganized in 1835. It is owned by the state and operates under the minister of education. The university consists of five faculties: philosophy and letters, law, science, medicine and applied sciences; four institutes superior: history of art and archeology, history of oriental literature, pedagogical science and physical education; two schools: criminology and commerce and economics, and two interfaculty centers: colonial studies and labor.

The chief officer of the university is the rector and president of the academic council. He is elected by the faculty for a term of three years. The position rotates among the faculties. Deans of the faculties are elected by the respective faculties for one-year terms.

An administrator-inspector, having indefinite tenure and appointed by the minister of education, is the representative of the state on the administrative council or commission of the university. He exerts considerable power through control of the budget. Usually the man chosen for this post has been a member of one of the faculties of the university.

The academic council consists of the professors (professeurs ordinaires) of all the faculties. This body formulates the academic policies and establishes rules and regulations for academic procedures within the limits set by the laws of the state.

FACILITIES

The preclinical departments are housed in separate buildings located in various parts of the city. Most of them are within easy walking distance of each other. Clinical departments are accommodated in the Hospital Bariere and the University Polyclinic. Preclinical departments

were not visited. They were said to be well equipped though inadequate to handle the large number of students. Plans are in the process of development looking toward the expansion of the laboratories and hospital.

FINANCES

No data pertaining to the financial affairs of the university were obtained. It was reported that approximately 95 per cent of the support came through governmental appropriations. Students are charged tuition of about 4000 Fr. (equivalent to $80 in the U. S.) each year.

There is no central budget for the medical school. Each professor (head of department) submits his request for funds to the administrator, who in turn, after assembling all data, submits the material to the minister of education. Department heads deal directly with the administrator rather than through the dean.

FACULTY

There are six professeurs ordinaire in the science faculty who are assigned to the medical faculty for the instruction of first-year students.

The medical faculty consists of the following: professeurs ordinaires, 18; professeurs a titre honorifique, 5; charges de cours, 10; agreges, 3; cours libres, 2.

The faculty in the preclinical departments is on a full-time basis whereas most of the members of the clinical department devote only part of their time to the school. In internal medicine there are two departments. One of these, headed by Professeur Brull, is on a strictly full-time basis. This is also true in the department of pediatrics, headed at present by Charge des Cours Dr. Lambrecht.

In addition to the faculty members as given above, there are over 60 doctors of medicine in the clinical departments who assist in the teaching. They carry titles of directeur, chef de traveaux, assistants, etc. There are also 30 voluntary assistants.

As in other Belgian schools, the professeurs ordinaire form the official faculty and participate in determining academic policies and practices.

Professeurs hold indefinite tenure. Retirement is fixed at 70 years of age. It was stated that from 1865 until several years ago, the pension or retirement allowance had amounted to the full salary. Recently the government reduced the allowance by about 50 per cent. This caused great complaint because of its insufficiency. Efforts were being undertaken to induce the government to restore the previous allowance.

FACULTY APPOINTMENTS

When a vacancy occurs in the position of professeur ordinaire, an announcement is made in the public press and also sent to the other universities. A special committee is organized to consider all applications received and to make recommendations to the faculty. The faculty, in turn, makes recommendations to the minister of education, who recommends to the king. Though the minister may act independently of the faculty, it is not customary for him to do so. Professeurs ordinaire in the state universities hold crown appointments.

STUDENTS

Entrance requirements are fixed by law and are the same at all Belgian universities (See University of Louvain).

All instruction is conducted in the French language.

Entering classes number approximately 200 students. Failures at the end of the first year often amount to 50 or 60 per cent of the class. Students may return for re-examination after three months. Should the student fail upon re-examination, he may re-enter as a new student. He may repeat this process as often as he desires. In practice, however, students seldom continue if they fail the first re-examination.

During the academic year 1949-50, the second year class numbered 140 students; the third year, 125 students and the fourth year (first clinical) between 80 and 90 students. There are few failures or withdrawals in the subsequent years. The graduating class, normally, will number about 90 students.

The university does not have housing accommodations for students or faculty. It operates a "service social" for assistance to students in obtaining lodgings in the city, in social and recreational matters and with respect to financial assistance, medical care and advice concerning prizes, scholarships, etc.

CURRICULUM

The medical course follows the same general pattern as at other Belgian universities and is of seven years' length:

The first year of instruction is given by the faculty of sciences. It consists of lectures and laboratory exercises in physics, general chemistry and zoology and in analytical geometry. The year concludes with the first candidate examination.

The subsequent six years are given by the faculty of medicine. Two are devoted to the preclinical sciences and four are designated as clinical. The curriculum is arranged in the following order:

Second year: botany, gross anatomy, histology, physiology, biochemistry, philosophy (logic) and psychology (morale).

Lectures are scheduled in the mornings and laboratory exercises in the afternoons. The daily schedules cover the hours from 8:30 or 9 A.M. to 6 P.M. Mondays to Fridays, and from 9:30 A.M. to 12 noon on Saturdays.

Second candidate examination: third year: gross anatomy; histology, special; physiology, special; biochemistry, and optional course in mineralogy.

As in the first year, lectures are given in the mornings and laboratory work in the afternoon.

Third candidate examination: fourth year (first clinical): general pathology and therapeutics; pathological anatomy (autopsies, demonstrations and laboratory work, gross and microscopic); bacteriology and parasitology; surgical pathology; propedeutics (physical diagnosis), lectures and practical exercises; elements of radio-diagnosis; medical clinics (demonstrations).

Optional courses: pathology and therapeutics in medical specialties.

First doctorat examination: fifth year (second clinical): pharmacology, (theory and laboratory); special pathology and therapy medical; special surgical pathology; clinics (lectures and demonstrations) medicine, surgery, pediatrics; obstetrics, theory; hygiene, personal and public; pharmacodynamics (lectures and exercises); public health, field trips.

Second doctorat examination: sixth year (third clinical): clinics—lectures and demonstrations in hospital wards and outpatient departments in medicine, surgery (also operative clinics), obstetrics, gynecology, pediatrics, ophthalmology, dermatology and syphilology, otorhinology, urology; pathology and therapeutics in psychiatry; attendance at autopsies; principles of dental medicine; physiotherapy; radio therapy; practical exercises (manikin) in obstetrics; legal medicine, including blood groups and transfusion.

Third doctorat examination: seventh year (fourth clinical): primarily a clinical year. Students are assigned in groups to the chiefs of the various services.

There are some clinical lectures and some practical work in surgical technique, and demonstrations in regional anatomy. Students are required to devote three months each to medicine and surgery and in addition may elect to work in obstetrics, pediatrics or some specialty. There is

comparatively little separation of medical specialties and, except for urology and eye, ear, nose and throat, little departmentalization in surgery.

During the last clinical year, about one half of the class live in the hospital. The others, though residing elsewhere, attend in the hospital wards and in the outpatient department daily. While the student's participation in the clinical work in this year in some respects simulates that of the intern year in America, the students carry little or no responsibility for the care of the patient. Some may attend in other than the University Hospital, provided the hospital has been approved by the university.

The statements made and the published schedule of courses indicate that there is a better balance here between didactic lectures and laboratory work than in some of the other Belgian schools. The clinical courses appear to be heavily weighted with didactic instruction in three of the four years.

In comparison with American medical schools, the student's contact with patients in these years is greatly restricted. It is primarily limited to clinical demonstrations in hospital ward and outpatient department. Clinical instruction in the final year can be rated as very good. In many respects this year compares favorably with the American internship or English house officer position. However, the student is not held responsible for the care of the patient. His medical history does not become a part of the official record.

The medical faculty at Liege has recently organized a committee to study the curriculum with a view toward its improvement. Illustrative of the independence and autonomy of the professor within his department was the comment, "That recommendations for change might invade the prerogatives of the professor and interfere with his academic freedom." It is difficult to make changes when patterns have become rigid and customs deeply rooted.

LIBRARY

The students have access to the large central library of the university, which was reported to contain an extensive collection of medical books and journals. There also are institute or departmental libraries to which the students may be admitted with the consent of the head of the department.

In general, however, and because of the crowded program and method of instruction, the students make comparatively little use of these libraries. For the most part their studies are limited to their lecture notes and textbooks.

GRADUATE EDUCATION

Opportunities are afforded for advanced study in the basic sciences leading to higher degrees.

For graduates in medicine, advancement is provided through appointment as assistants in the hospital. After varying terms of service in the special fields of medicine, certification as specialist may be obtained.

POSTGRADUATE EDUCATION

It is customary to organize postgraduate clinics of three days' duration each year. These may be attended by members of the general profession.

A journal for general practitioners, "Revue Médicale de Liege," is published by Professeur Brull, department of internal medicine. This bimonthly publication, now in its fifth year, has a growing circulation.

AFFILIATED HOSPITALS

The Hopital de Baviére (also called Hopital Universitaire), having a capacity of 700 beds, and the University Polyclinic are used for clinical teaching purposes. The hospital is owned and operated by the ministry of public assistance and therefore is not di-

rectly under the control of the university. While relations are amicable, it was the opinion of the faculty that the present arrangement was not in the best interests of the teaching program. New legislation has been proposed which would transfer the hospital to the university.

The need for larger clinical facilities was recognized. At present some students must go to other approved hospitals for the sixth and seventh years of the program. They return to the university for final examinations by the faculty. This arrangement was not felt to be particularly effective. It was the hope that plans now in progress looking toward the enlargement of the hospital and the construction of new buildings for the preclinical departments in its immediate vicinity could be brought to fruition in the near future. In view of present economic conditions and the fact that capital funds must come from the government, the outlook was not very bright.

ALUMNAL ORGANIZATION

An organization known as Association des Amis de l'Universite was founded in 1929. It is composed of former students, members of the faculties and representatives of industry. It assists in the support of the service social universitaire and otherwise carries on activities of diverse nature in behalf of the university.

RESEARCH

Active programs of research are in progress in all of the basic science departments. This is also true in the department of internal medicine, of which Dr. L. Brull is chairman. All members of his department serve on a full-time basis and devote much of their time to fundamental research. Studies pertaining to the degenerative diseases were engaging their attention. Laboratories are adequate in size and are well equipped. Most of the support for research is obtained from the "fonds national de la recherche scientifique," the "fondation universitaire" and special grants from individuals and other foundations.

GENERAL COMMENTS

As in the other Belgian schools, there was comment upon the excessive number of students, the crowded curriculum and the lack of free time for study, the large amount of didactic teaching and the burden imposed upon the professor because of the examination system.

A considerable number of French, Dutch and other foreign students seek entrance to the medical courses at Liege because of the reputation which the school enjoys abroad.

Officially, the university was not closed during World War II. However, there was considerable interference with the educational program. Many members of the teaching staff and the student body engaged in underground and maquis activities and were absent for variable periods of time. The hospitals, while caring primarily for civilians, at times were also required to admit wounded soldiers of the German army.

UNIVERSITEIT TE GENT
(University of Ghent)

The University of Ghent is owned and operated by the government. Immediate control is lodged in the ministry of education. The institution consists of the faculties of arts and letters, law, medicine, science and several schools and institutes. The faculty of medicine is also responsible for the teaching of dentistry, pharmacy, veterinary medicine and physical education. It also includes the institute or centrum of biochemistry which grants diplomas (or licentiate) in biochemical sciences.

The chief administrative body (subject to the regulations of the minister of education) is the council of assessors. It consists of the rector,

the pro-rector, the deans of the four faculties and the administrator, who is secretary of this council and the academic council.

The rector is appointed by the minister of education for a term of three years. He is chosen from a panel of three elected or nominated by the members of the faculties (professeures ordinaire or gewone hoogleraren). Provision is made for the post to alternate among the four faculties. Technically, the appointment is made by the king.

The pro-rector, in this instance, is the title given the previous rector. He holds the office for three years.

The administrator of the university is the immediate representative of the government. He is appointed by the minister of education, independent of any faculty recommendation, and holds office for an indefinite term. Usually he is or has been a member of one of the faculties (only two in over 130 years have not been so qualified).

The deans are elected by their faculties. Prior to 1949 they were elected annually. Since then they are elected for terms of three years and may be re-elected. It is provided that to be eligible for the deanship, the individual must have been professeure ordinaire for at least 10 years. The dean's major functions appear to be presiding at faculty meetings and representing the faculty in the councils of the university and elsewhere. He also serves as president of the jury that determines the student's competency at the end of his final year of study.

The University of Ghent was founded in 1817 by King Wilhelm the First and was under the Dutch government until 1831. It is the smallest of the Belgian schools, having a total of approximately 2500 students (all faculties). Instruction is carried on in the Flemish language.

FACILITIES

University buildings are located in various parts of the city. There is no central campus. Most of the buildings are quite old and show the lack of maintenance during the war years. Laboratories appeared to be adequately equipped though inadequate in size for the large number of students.

FINANCES

Financial support, except for the small tuition and fees paid by the students, is provided by the government. Though six months of the current fiscal year had expired, the appropriations for the year had not been set. Operation was proceeding on the basis of the preceding year.

As at the University of Liege, heads of departments deal directly with the administrator rather than through the dean or rector. No general financial data was obtained.

FACULTY

The official faculty consists of 28 professors (gewone hoogleraren). There are 15 docenten and 25 assistants and those of lesser grade listed in the announcement. Most of these are attached to the clinical departments.

Members of the teaching staff in the preclinical departments, for the most part, devote all of their time to their duties at the university. Most of those in the clinical departments serve on a part-time basis and carry on private practice. Those on full-time in the clinical departments receive part of their compensation from the university and part from the hospital. Professors have the privilege of designating the type of salary arrangement they desire at the time of their appointment.

Faculty appointments, retirement and pension allowances follow the same pattern as at Liege.

STUDENTS

Entrance requirements are the same as in other Belgian universities:

certificate from athenee, lycee, free college (Catholic) or by examination before an appointed board in Brussels (this latter is exceptional in medicine). There are some minor differences in the programs of the secondary schools, but all include Latin, mathematics, history, geography, Flemish, French and two other modern languages (usually English and German) and elementary physics, chemistry and biology. The law provides that all qualified students who apply must be accepted. The practice is to screen by examination at the end of the first year. If the student does not pass the first examination (in June), he may request re-examination the following September. If unsuccessful then, he may repeat the year and, if unsuccessful in the following June examination, is eliminated, but may continue his education in another faculty.

At Ghent the classes are of approximately the following sizes: first year, 200 students (crowded); second year, 100 students, 50 per cent reduction; third year, 70-80 students, 20-30 per cent reduction; fourth year, 50-60 students, 20-30 per cent reduction; fifth and sixth years, 50-60 students; seventh year, 50 degrees granted. The gross reduction is 70 to 75 per cent from the entering class. Many students, however, take eight to 10 years to complete the course so that the net loss is somewhat less but will average over 50 per cent.

Various student organizations have been established since World War II:

1. De Nationale Studentengroepering, Gent (N.S.G.): this is a national organization having chapters at all the universities and local groups under the various faculties. The association has as its purpose the development of student interests in national and international affairs and the conduct of activities in behalf of students welfare generally.

2. De Regionale Clubs: these clubs are composed of small groups of students organized on the basis of social and special interests. They correspond to some extent to the fraternities found in American universities.

3. There also are group organizations formed upon religious, political and philosophical bases to which many students belong.

4. Gentse Universitaire Sportbond (G.U.S.B.): this athletic association sponsors all the various sports and conducts both intra-mural and inter-university athletic contests. Participation in athletic and other recreational activities is encouraged. Medical students, however, are said to be rather lax in their interests in these activities.

STUDENT HEALTH SERVICE

An organized health service has been established recently. It is entirely voluntary. Services are of preventive and advisory nature. The great majority of students are covered by health insurance when in need of medical or hospital care.

THE CURRICULUM

The general plan of the curriculum is similar to that of the other Belgian schools:

First year: instruction given by faculties of science and medicine. Subjects: botany, zoology (including comparative anatomy), chemistry (inorganic and organic), physics, logic and general histology.

First candidature examination: second year: physics, zoology, organic chemistry, topographical anatomy, general physiology and biochemistry.

Second candidature examination: third year: psychology, comparative anatomy, embryology, topographical anatomy, histology, special physiology. *Optional courses* in chemical micro-analysis, mineralogy, general biology, histology and embryology. These are not required and are not covered by the examination.

Third candidature examination—degree conferred if successful—*candidate in science and medicine.*

Fourth year (first clinical): gen-

eral pathology and therapy, pharmacology, morphological pathology, bacteriology and parasitology, hygiene (personal), lectures in general medicine. Attend clinical demonstrations, but clinical studies are not covered in the examination.

First doctorate examination: fifth year (second clinical): pharmacology (dynamic); physiotherapy; x-ray diagnosis; theoretical lectures in medicine, surgery, pediatrics; no clinical work.

Second doctorate examination: sixth year (third clinical): theory and practical exercises in surgical technique. Lectures in pediatrics; eye, ear, nose and throat diseases; dermatology and syphilology; public health; neurology; psychiatry; gynecology and urology. Optional attendance at specialty clinics and demonstrations.

Third doctorate examination: seventh year (fourth clinical): this year consists primarily of clinical instruction with few theoretical lectures. Inpatient and outpatient clinics; four months each in medicine, surgery and obstetrics; attendance at autopsies. Must combine one specialty with one of the major services.

To enter the final examination, the student must have passed all previous examinations and present certificates indicating attendance at lectures and demonstrations for three years in medicine, surgery and obstetrics and in the specialties for one year.

The final examinations are practical—with case demonstrations. They are given by the professors personally, and cover medicine, surgery, obstetrics, pediatrics and one specialty.

A jury of five, consisting of five professors, meets and determines the student's competency. Students are graded: 90 per cent, honors; 80 per cent, great distinction; 70 per cent, distinction; 60 per cent, satisfactory. Any grade of less than 60 per cent is considered by the jury. If there are two grades of less than 60 per cent, the student does not pass and must submit to re-examination or repeat the year. If there is one frank failing grade, the student must repeat all of the last year.

Examinations are set by appointment and the student must appear or rate a failure.

As in the other Belgian schools, there are many preclinical courses crowding the student's time and leaving little time for contemplative study. The clinical years, except for the final year, are heavily weighted with didactic instruction. There are clinical demonstrations in the wards and in the outpatient department for students in the first and second clinical years, but little participation by the student in clinical exercises. In the third clinical year, the student devotes most of his time to the specialties; here too, the student has little opportunity to engage actively in clinical work. The fourth and final year is primarily devoted to clinical instruction. The student serves in much the same manner as do interns in American hospitals, except that his work is under greater supervision and he carries little responsibility.

To enter upon his final year, the student must present evidence of having attended clinical demonstrations in medicine, surgery and obstetrics in the hospitals and outpatient departments for three years, and in the specialties for one year. He also must present certificates of having passed examinations in all subjects taken previously. Throughout the course there is little time for independent study or participation in research.

Because of the limited clinical facilities, some of the students are permitted to spend their seventh or final year in other hospitals which have been approved by the university. They return to the university for final examination.

The course conducted by Dr. (Prof.) J. Bouckaert in general pathology and general therapy was of

particular interest. In this course, through lectures and laboratory demonstrations on animals, endeavor is made to show the application of scientific principles to clinical medicine. It is primarily a course in pathological physiology with reference to the application of corrective measures. Professor Bouckaert is keenly aware of the need of such teaching in the wards of the hospital and outpatient department. In these areas, however, the teaching is largely directed toward the recognition of disease entities, classical descriptions of disease and a rather dogmatic therapy.

Time was not available for visits with students. Those that were seen in the course of brief visits to the hospital compared favorably in appearance with American students. Four young assistants in the department of medicine made very favorable impressions. They discussed their experience as students, stressing their desire for more clinical and less didactic instruction, and spoke intelligently of the work they were doing.

LIBRARY

There is a central university library to which all students have ready access, also departmental libraries to which they may gain access with the professor's consent. It was stated that students are required to present term papers or short dissertations in the departments of general pathology, bacteriology and obstetrics. In these instances the libraries are used. The central library was not visited. The departmental libraries in medicine and in general pathology appeared to be quite adequate.

GRADUATE EDUCATION

Organized programs of advanced study have been established. Two years of study after obtaining the degree of Doctor of Medicine, Surgery and Obstetrics may qualify the student for the degree of Aggregaat Van Het Hoger Onderwiss. Studies in this program are all in the basic sciences.

Those who obtain appointments as assistants in the clinical departments and who serve in the hospital may, after several years of service and advanced study, qualify for the degree of Special Doctor.

POSTGRADUATE EDUCATION

There is no organized program. It is customary to stage one day of clinics and demonstrations at irregular intervals for the association of graduates (alumni), and to offer occasional lectures on particular subjects for the general profession.

HOSPITALS

The Community Hospital (Hopital Bioloque) serves as the teaching hospital. It is operated under the ministry of public assistance. The university owns and operates the outpatient department (polyclinic), which is housed in a separate building.

There are both university and public assistance services in the hospital. The teaching services have the privilege of selecting patients for admission and may also request the transfer of patients, who are of teaching interest, from the nonteaching services.

The inadequacy of the clinical facilities has long been recognized.

A hospital of 1000 bed capacity, to be owned and operated by the university, was started in 1936. Progress in construction was slow because of lack of funds. All construction ceased during the war and the structure was used as a motor supply depot by the German army. Since the liberation of Belgium, funds have not been available to permit continuation of the project. The large, concrete structure stands windowless and otherwise incomplete. It is the hope, however, that the hospital, together with new laboratory buildings, can be completed during the next four or five years.

ALUMNAL ORGANIZATION

An association of former students has been organized in recent years. Thus far, development has been rather slow. No active programs have been undertaken.

RESEARCH

The preclinical and some of the clinical departments are actively engaged in research activities. Prof. C. Heymans (pharmacodynamics) is a Nobel Prize winner. A number of others have won international reputations for their work.

Research is primarily supported from special funds and grants from the National Research Fund and the Fondation Universitaire.

UNIVERSITÉ LIBRE DE BRUXELLES (Free University of Brussels)

ORGANIZATION

The University of Brussels, founded in 1834 by Pierre Theodore Verhaegen, is an independent, voluntary institution. It consists of six faculties: philosophy, law, sciences, medicine and pharmacy,* applied science, and social and political sciences and economics, and several special schools and institutes.

The university is governed by a council of administration of 37 members consisting of the following:

President and vice president (business men) — 2; rector, chosen from one of the faculties—1; vice rectors (pro-recteur and ancien recteur)—2; administrator (business manager)—1; presidents of faculties—6; delegate of alumni (l'union des anciens étudiants) — 1; members (membre permanent) chosen by the council from benefactors of the university. (The council fixes the number and elects these individuals, who hold indefinite tenure.)—24. Total membership—37.

*The faculty of medicine and pharmacy conducts the courses in medicine, pharmacy, dentistry, public health, physical education, and also courses for technicians. It also controls courses for higher professional degrees.

Officers of the council, elected by the council, consist of president, honorary president and vice president. Six vice presidents of the faculties serve as supplementary members of the council.

The routine work of the administrative council is carried on by the bureau which, in effect, is an executive committee. It holds weekly meetings. The bureau consists of 10 members: president, vice president, rector, administrator, pro-rector, ancien rector and three permanent members of the council. A secretary of the university, named by the council, constitutes the tenth member of the group.

The administrative council is the supreme governing authority of the university. While the institution receives considerable governmental support (50 per cent of budget), there are no governmental representatives on this body.

Academic affairs are controlled by an academic council of 16 members consisting of: 1—rector; 2—pro-rector and ancien-rector (past rector); 12—presidents and vice presidents of the six faculties (delegate of school of pedagogy who is also vice president of the faculty of sciences); 1—delegate of general faculties (teachers or agrégés).

The rector is elected by the faculties annually. The practice is to reelect twice for a total term of three years. The office rotates, after such term, among the six faculties.

The rector presides at faculty convocations and generally represents the professional corps.

The academic council is charged with improvement of the university (perfectionment), review of general programs of study and attention to communications from the administrative council.

Technically, the faculties consist only of the professeures ordinaire who are full-time and hold indefinite tenure. Only these professors participate in the election of president, vice president and secretary of faculty,

and of president and secretary of the council. The president presides at faculty meetings and is responsible for esprit de corps among its members; he also represents the faculty on the councils.

FACILITIES

The buildings housing the preclinical departments are large and appear to be commodious and fairly well equipped. However, the large number of students causes overcrowding in the laboratories and some of the lecture rooms. Departmental offices and research laboratories, occupying the upper floors, have more space generally than the student accommodations on the lower floors.

In physiology the student laboratory accommodates 56 students, making it necessary to teach the class in three sections. This entails added work upon a group of teachers which is too small, and restricts the time that otherwise could be devoted to research.

This same situation is said to be the case in other preclinical departments. Anatomical material (cadavers) is in short supply. Because of this and the large number of students, the program in dissection has been curtailed. Pro-sections, demonstrations and museum material are used rather extensively.

FINANCES

No specific data on finances was obtained. The government was said to provide a subsidy equivalent to about 50 per cent of the instructional budget.

FACULTY

The corps of teachers (agrégés) in the medical faculty consists of:

Professeures honoraires (honorary or emeritus).

Professeures ordinaire (see note under organization).

Professeures extraordinaire. This title is given to those appointed to teach courses listed in the program. Usually they are not full-time appointees.

Professeures agrégés. A title given professors of other universities teaching at Bruxelles (visiting professors). Given to Belgians only upon affirmative vote of three-fourths of the faculty.

Professeures associes (associate). Given by council only, upon recommendation of faculty, to men of quality and merit (chiefs of hospital services).

Chargés de cours or *de clinique, chefs de travaux.* Titles given those who may be given responsibility for a particular course or conduct of clinical instruction.

Suppléant. Virtually an assistant.

Maitres de conference and agrégés. Titles given to those who act as instructors in clinics and hospitals.

The full-time faculty in medicine consists of: 16 professeures ordinaire (see above), 12 chefs de travaux, 27 suppleants (assistants)—a total of 55. In addition, 17 aides or assistants are listed as full-time in the clinical services of the hospitals.

The part-time members of the faculty are primarily in the clinical divisions of the two hospitals. These consist of: 11 professeures ordinaire; 11 charge de clinique, de cours, or de travaux; 1 professeure extraordinaire; 33 adjoints; 57 aides—a total of 113. The total of 168 for full-time and part-time members of the faculty must be considered as only an approximation.

FACULTY APPOINTMENTS

In instances other than heads of departments (professeures ordinaire), vacancies are filled upon recommendation of the head of the department, transmitted with the approval of the respective faculty to the academic council. After approval by that body, the recommendation is sent to the administrative council for confirmation.

In the case of a vacancy in the position of professeure ordinaire, the procedure is as follows:

(a) There is public announcement in the press, academic publications, and to other universities in Belgium.

(b) Applications are received from members of the faculty of the University of Bruxelles and other universities, and from the profession at large.

(c) The faculty appoints a committee of four or five to review the applications and report the result (placing candidates in preferential order) to the faculty. (The committee may interview applicants.)

(d) The faculty votes its preference and transmits its vote to the administrative council.

(e) The council usually accepts the faculty's nomination, but need not do so. It is free to elect a man of its own choice. Council's election is final.

Retirement from the faculty is fixed at 70 years of age. Pension allowances are paid similar to those at other Belgian universities.

STUDENTS

Entrance to the university (including the faculty of medicine) is open to any student upon presentation of a certificate of graduation from a secondary school: atheneé, lyceé or free (Catholic) college, or the student may take a general entrance examination, given in Bruxelles under the ministry of education.

There was general complaint that too many students desire to study medicine. After the war the faculty of medicine established an entrance examination, but this was discontinued after three years. It was found to be unsatisfactory and a poor method of selection. While all atheneé and free colleges followed the same program of instruction, there was great variation in the students' preparation. Rural students especially were at a disadvantage; good students were lost. The faculty has returned to its earlier system, permitting all students holding the proper certificates to enter and eliminating weak ones at the end of the first year.

GENERAL PLAN OF COURSE OF STUDY

Students enter the course usually at age 17 or 18.

The secondary school program covers the general educational courses; these include both French and Flemish (Belgian state languages) and two other modern languages (usually English and German).

The medical program covers a period of seven years. The year is divided into two terms of approximately 15 weeks each, with a final period of one month for review and study. The academic year extends from October to July.

Examinations are given from about June 15 to July 15, and again, for repeaters and those who did not take the summer examination, in October.

All instruction is carried on in the French language.

The first year of study is given under the faculty of sciences and consists of:

	Lectures (Hours)	*Laboratory (Hours)*	*Demonstrations (Hours)*
Physics	120	80	40
Zoology (elementary and comparative anatomy)	60	44 (Micro)	
Chemistry (general)	120	160	
Mathematics (geometry and trigonometry)	15	15	
Optional courses recommended:			
Analytical geometry	60	60	
Minerology	17		
Geology and physical geography	30		

First candidates' examination—natural and medical sciences

Second Year:	*Lectures*	*Laboratory*	*Demonstrations*
Human anatomy	60		180
Histology	30	36	
Physiology, general	75	60	
Physiological chemistry, general	30	75	
Botany	45		60
Philosophy *(moralé)*	5		

Second candidates' examination

Third Year:	*Lectures*	*Laboratory and Demonstration*
Embryology	30	
Human anatomy	63	220
Topographical anatomy	27	
Physiology, special	135	90
Histology, special	45	45
Physiological chemistry, special	30	
Psychology	30	
Logic and *moralé*	15	

Third candidates' examination

Fourth Year (first clinical year)	*Lectures*	*Laboratory*
Bacteriology and parasitology	60	30
General pathology	45	24
Chemical pathology (first part)	15	
Morphological pathology	90 (and Demonst.)	32
General pharmacology and therapeutics	45	
Surgical pathology and therapy	30	
Propedeutics (physical diagnosis)	90	
Elements of x-ray diagnosis	30	
Principles of medical dentistry	15	
Optional courses:		
Flemish medical terminology	15	
Microchemistry	15	
Parasitology—special laboratory sessions		

Clinical Instruction

Medical diagnosis	90 hours	Hopital Universitaire St. Pierre
Surgical diagnosis	30 hours	Hopital Universitaire St. Pierre
Medical clinics	60 hours	Hopital Brugman
Surgical clinics	60 hours	Hopital Brugman

First doctorat examination

Fifth year (second clinical year)	*Lectures*	*Laboratory*
Physical therapy	30	
Chemical pathology (second part)	15	70 Approx.
Special pathology and therapy	60	
Dynamic pharmacology	60	14
Special pathology and therapy (surgical)	60	
Diagnosis and theory in obstetrics	60	

Clinical Instruction

Medical clinics	90 hours	Hopital Universitaire St. Pierre
Surgical clinics	45 hours	Hopital Universitaire St. Pierre

Obstetrical	90 hours	Hopital Universitaire St. Pierre
Medical clinics	30 hours	Hopital Brugman
Surgical clinics	45 hours	Hopital Brugman

Second doctorat examination

Sixth Year (third clinical year)	*Lectures*	*Laboratory*
Psychiatry	30	
Regional anatomy		45 (Demonstr.)
Surgical technique (theory and practice)	90	
Social medicine	30	

Clinical Instruction

Clinics in:	*Hopital Brugman*	
Gynecology	15 hours	
Psychiatry	30 hours	
Pediatric surgery	15 hours	
Urology	30 hours	
	Hopital Universitaire St. Pierre	
Stomatology	15 hours	
Ophthalmology	30 hours	
Pediatrics	30 hours	
Dermatology and syphilology	30 hours	Also attendance at the bedside and in the outpatient department.
Ear, nose and throat	30 hours	
Gynecology	15 hours	
Obstetrics	30 hours	

Seventh Year (fourth clinical year)	*Lectures*
Legal medicine	45 hours
(Also three 2-hour practical sessions)	
Hygiene (public and individual)	60 hours
With visits and demonstrations	
Optional courses:	
Flemish medical technique	10 hours

Clinical Instruction

	Hopital Universitaire St. Pierre
Medical clinics and seminars	90 hours
Surgical clinics	60 hours
Neuro-surgical clinics	15 hours
Obstetrical clinics	60 hours
Radiotherapy clinics	15 hours
	Hopital Brugman
Medical clinics	90 hours
Surgical clinics	60 hours
Obstetrical clinics	60 hours

Seminars and conferences once each week.

Third and final doctorat examination

It is required that the student present evidence of having had six months each of clinical (hospital) work in general medicine and surgery. He may have had some experience in a special clinical field, but this is not required.

The preclinical courses appear to cover the subjects adequately. While didactic instruction materially ex-

ceeds laboratory exercises, the students are required (in the course of their examination) to demonstrate their acquaintance with laboratory equipment and their proficiency in conducting various tests and exercises. These are quite similar to those encountered in American schools.

As indicated in the outline given previously, there is considerable didactic instruction in the clinical years, particularly in the first two (fourth and fifth of general program). This is especially evident when it is noted that the medical, surgical and obstetrical clinics in these years consist largely of lectures and demonstrations. There is considerable use of textbooks and systematic presentation of disease entities.

The last two of the four clinical years are spent, primarily, in the hospital and outpatient department. The student, though he has less responsibility in the care of patients than is the case in most American medical schools, does participate in the work. At Brussels the student has more clinical experience than at the other Belgian schools.

An internship is not required though many students seek appointment as assistants and may continue in such positions for a number of years.

The first-year class will number between 300 and 400 students at the present time. Of these, approximately 70 per cent fail to pass the examination given in July at the end of the first year. Those failing this examination, and others who may not have taken it, may take an examination in October of the same year. A sufficient number will pass this second examination to bring the net loss in the first-year class to about 50 per cent.

A student who fails this second examination may re-enter as a new student if he so desires, but it was reported that comparatively few do so.

The same procedure is followed in subsequent examinations. It is stated that the loss in later years is not large (a total of 10 or 15 per cent). Most students who complete the first year satisfactorily will complete the course in the normal seven years, though there are some who may encounter difficulty. Some, with persistence, may take nine or 10 years to graduate.

The graduating class will number between 100 and 125 students at the present time.

Great reliance is placed upon examinations. The law prescribes that only the professor (head of the department) may give the examination. Examinations are chiefly oral and practical, though some written work may be included. Assistants are sometimes utilized to give minor portions of the examination, but the heads of departments carry a rather onerous burden in this connection. The descriptions given of examinations by both preclinical and clinical men would indicate that they were quite thorough and comprehensive. Particularly is this the case in the instance of the mediocre or borderline student.

Under Belgian regulations if any student so desires he may request examination by a central examination board. Such board would be appointed by the minister of education and consist of members representing the faculties of the four universities.

A professorship in social medicine was established in 1945 with support from the Rockefeller Foundation. An annual budget of 700,000 Belg. Fr. ($14,000) is provided. Dr. René Sand (professeur ordinaire) is on half-time basis. He has a full-time assistant and a secretary. The course is entirely independent of the courses in forensic medicine and public health. It is given in the sixth (third clinical year), and consists of 30 lectures and field exercises. The course is compulsory. In addition to an oral examination at its conclusion, each student is required to submit a written socio-medical report (covering a patient assigned by the hospital social service department), which has involved

visits to the patient's home. Stress is laid upon sociological methods: statistics, surveys, medico-social case studies; on sociological problems such as poverty, unemployment, family budgets; social policy, social legislation, social security, social service work and the economic and social problems raised by the organization of medical care. Dr. René Sand bears an international reputation in this field, in which he has been a leading figure for many years.

LIBRARY

There is a large central library located a short distance from the medical buildings to which the students have ready access. There is, in addition, a separate library for the faculty of medicine and pharmacology in the school buildings, and the individual departments (preclinical) also have small departmental collections composed chiefly of scientific journals.

These faculty and the departmental libraries are intended primarily for the use of the faculty. Students, upon special request, may use them. It was evident, however, that use of the library by students was not encouraged. The student depends primarily upon lecture notes and assigned textbooks for study and reading.

GRADUATE EDUCATION

Various programs of advanced study have been established. These may lead to special diplomas or to higher degrees. In the clinical fields, graduate courses are offered in anesthesiology, gynecology and obstetrics, ophthalmology and pediatrics. Advanced training also is available through appointment as assistant in the clinical departments. Internists and surgeons, after six years of study and hospital service, may obtain classification as specialists.

The Doctorat in Medical Science can be obtained after four or five years of advanced study and the presentation of an acceptable thesis covering original research. In this area there is full cooperation between the basic science and clinical departments.

POSTGRADUATE EDUCATION

There is no organized program of education or continuing study for the general profession. There are frequent lectures and occasional conferences which they may attend.

HOSPITALS

The Hôpital Universitaire Saint Pierre and the Hôpital Universitaire Brugman furnish the clinical facilities. Each of these is a public hospital closely affiliated with the university, and each has a capacity of several hundred beds and an extensive outpatient department.

The Hôpital Saint Pierre was visited. It is a large, fairly modern institution, located immediately adjacent to the university buildings. The wards were large—20 to 30 patients—well arranged and equipped. Outpatient accommodations are large and well arranged, following the usual continental pattern of large waiting rooms, adjacent examining and lecture or demonstration rooms.

The Hôpital Brugman is at some distance from the university. It occupies more recent buildings and is said to compare very favorably with Saint Pierre.

The Institut Jules Bordet, founded in 1935, is a separately organized unit within the University of Bruxelles. It is operated under a committee consisting of representatives of the university and commission of public assistance of Bruxelles. A scientific council controls the work of the Institut. Dr. Albert Claude, professeur ordinaire in the university, serves as director. Until 1948 he was an associate member of the Rockefeller Institute for Medical Research.

The Institut is housed in a modern structure, adjacent to the medical school buildings and to the Hôpital Universitaire St. Pierre. It contains splendidly appointed research lab-

oratories, outpatient department, and approximately 200 patient beds.

In addition to the department of research, the services are divided into these categories: pathology, radiation-therapy, surgery, x-ray diagnosis and medicine.

While primarily provided for research in the field of cancer, the institution presently provides for the care of some general surgical and medical patients.

It is the announced policy and the director's objective to develop the Institut into an outstanding research center. Plans to this end have been developed and some alterations are under way. A competent staff is gradually being assembled.

RESEARCH

Active programs of investigation are in progress in all of the basic science departments. Because of the limitation of funds, extensive equipment is being constructed from war surplus material in the department of physiology. Well equipped shops contribute to this end.

The faculty contains a number of members of distinguished reputation. Many are known for their achievements in scientific and medical circles abroad.

While some provision is made for research in the regular budget, the work is primarily supported from special funds and grants from foundations, industry and occasionally by individuals.

ALUMNI ORGANIZATION

The Union Des Anciens Etudiants De Université Libre De Bruxelles (A. S. B. L.) was founded in 1843. This association carries on an active program in fostering the interests of the university. It has established scholarships and funds for student assistance and conducts a placement service for graduates. Within the union there are associations representing each of the faculties and schools.

GENERAL COMMENTS

All of the Belgian schools confer the diploma of Doctor of Medicine, Surgery and Obstetrics upon satisfactory completion of the course of study in medicine. This diploma (Doctorat en Medicine, Chirurgie et Accouchements) conveys the privilege to practice medicine in Belgium only for native students. For foreign students it conveys the privilege to practice only in the Belgian Congo. Prior to the war, numbers of French, Dutch and some South American students attended the Belgian schools. The French and Dutch continued only for one or two years, returning to their own countries to complete their studies and take the final examinations. There is no reciprocity insofar as admission to the practice of medicine is concerned between the continental or scandinavian countries.

Since the war, because of the great number of native students seeking admission to the study of medicine, the number of foreign students has been greatly reduced.

The method followed in admitting students to the medical schools in Belgium (and in some of the other continental countries) might well be questioned. Admissions are based entirely upon minimum scholastic standards. No attention is paid to personal or character qualifications. The elimination of so large a proportion of the matriculants would seem to represent a wastage of time and effort of both faculty and students—a real economic loss. There was an obvious need for a method of selective admissions.

The introduction of elementary courses in philosophy, logic and morale represents an endeavor to broaden the student's general education. One might question whether it would not be better to include these studies in the earlier years and thereby free some of the time in the medical curriculum for independent study.

The curriculum in most of the continental schools that were visited ap-

peared to be heavily weighted with didactic instruction. There also was little coordination between preclinical and clinical courses.

The faculties were composed of competent, earnest and conscientious men. In most instances they were overburdened with teaching duties because of overcrowded classes and inadequate facilities. The methods of examinations used to appraise the student's progress imposed additional heavy duties upon them, leaving comparatively little time for study and research.

PRINS LEOPOLD INSTITUUT VOR TROPISCHE GENEESKUNDE

(Prince Leopold Institute of Tropical Medicine)
Nationalestraat, 155, Antwerp, Belgium

The Prince Leopold Institute of Tropical Medicine was established in 1931 by royal decree. It is an independent, voluntary institution having an endowment of 10 million Belgian Francs ($200,000). This provides an annual income of about 400,000 Fr. ($8,000). Consequently, the operating expenses are almost entirely derived from a subsidy provided by the government through the ministry of colonies. The prewar budget of approximately one million francs has been greatly increased. At present it totals about 9,500,000 Fr. ($190,000).

The board of management consists of 23 members made up of the following: chairman—governor of Province of Antwerp; vice chairman—minister of state for Belgium; four members—one representative from each university; three members representing the minister of colonies; two members representing the city of Antwerp; two members representing the foundation universitaire; two members representing the Province of Antwerp; two members representing the national fund for research; two members representing the Belgian-American educational foundation; one member representing the Red Cross of the Congo; one member representing the ministry of health and family welfare; one member representing the faculty of the institute, and one member representing the director of the institute.

An executive committee or bureau of five members acts as the active administrative board. Professeur (Dr.) A. Dubois serves as director and also heads the department of tropical pathology.

The institute is comprised of the following departments: pathology; protozoology; bacteriology, mycology and helminthology; entomology; medical zoology; tropical hygiene; anatomy; veterinary medicine, and tropical medicine (clinical division).

The institute has no organic connection with any of the Belgian universities. While this has the advantage of providing greater freedom of action, its disadvantages are clearly recognized by the staff who feel isolated from their colleagues in the universities.

The facilities occupied were erected during the 1920's and were primarily designed for office and clinical purposes. The quarters are shared with the provincial department of health. The research laboratories are located in various parts of the building. This separation was felt to be something of an obstacle to close coordination of the work. Laboratories and classrooms appear to be adequate in size and are well equipped and appointed.

The activities of the institute fall into three major categories: research, teaching and clinical service. The institution was located in Antwerp with the expectation that this large seaport would provide ample clinical material. A small outpatient department and a hospital of 40 beds is operated primarily for sailors and colonials. There is, however, a great dearth of clinical material.

An active research program is conducted. The studies relate primarily to problems encountered in the Belgian Congo. The staff, though small,

is composed of well qualified, competent men, all of whom have had extensive experience in the tropics.

Teaching activities fall into two main divisions:

1. Courses for medically qualified students.

2. Courses for nurses, pharmacists, sanitary engineers and veterinarians. Most of those in this section are planning to go to the tropics as missionaries. Their studies are primarily concerned with personal hygiene and public health.

Courses for both groups are of four months' duration and are conducted twice each year. Students in the first group number from 30 to 40 per class, while those in the second group usually total about 60 per class. A certificate or diploma is issued upon successful completion of the course. No degrees are granted.

FONDATION UNIVERSITAIRE

11, Rue d'Egmout
Bruxelles

The Fondation Universitaire was created by royal decree in 1920 "for the advancement of science." It is an independent organization. Its initial funds were derived almost entirely from the surplus of the Commission for Relief in Belgium (Educational Foundation), Hoover Commission, established at the conclusion of World War I.

The governing body consists of representatives designated by the following agencies:

Belgian-American Educational Foundation, Inc.	12
University of Ghent	3
University of Liege	3
University of Bruxelles	3
University of Louvain	3
School of Mines at Mons	1
Institute Universitaire of Territories Overseas	1
	26

Jean Willems serves as director. An executive committee or bureau of 11 members is the active administrative authority. Herbert Hoover is honorary president of this committee.

The scope of activities of the foundation embraces:

(1) The operation of its home office building in Bruxelles, in which offices, living accommodations for guests, dining rooms and a library of scientific literature are provided.

(2) The disbursement of funds for prizes, scholarships for Belgian students studying in the United States, for other student assistance, for some aid to American students studying in Belgium, for the support of scientific publications, for the support of scientific research and subsidy of scientific associations and institutions.

(3) The operation of a division of statistics, which issues an annual report covering the number of students attending the secondary schools and institutions of higher learning in Belgium.

(4) A diversity of other activities, including the conduct of conferences of various types, the study of the problem of student health in the universities and giving some aid to the Sanitorium Universitaire d' Eupen which has been established for the care of students afflicted with pulmonary tuberculosis.

The foundation is closely related to and cooperates with a number of other institutions that have research and educational interests. It is the source of great assistance to the faculties of the Belgian universities in their research work and to students who seek advanced training and experience in special fields. The foundation has been very helpful also to American students studying in Belgium.

The annual report for 1950, issued by the fondation universitaire, bureau of statistics, covering the school year 1949-50, presents the following data:

Total students registered in medicine, pharmacy and related divisions (under faculties of medicine):

1945-46	1946-47	1947-48	1948-49	1949-50
5698	5519	5520	5819	6178

1949-1950—MEDICAL STUDENTS

	Men		Women		
Year of Study	Belgian	Foreign	Belgian	Foreign	Total
1st Candidatuur (Preclinical)	1063	47	129	9	1248
2nd Candidatuur	594	28	69	2	693
3rd Candidatuur	538	29	57	4	628
1st Doctorat (Clinical)	434	25	34	4	497
2nd Doctorat	441	17	47	4	509
3rd Doctorat	421	16	34	6	477
4th Doctorat	224	14	25	7	270
	3715	176	395	36	4322

1948-1949—GRADUATES IN MEDICINE

Legal Diplomas	304	7	27	0	338
Scientific Grade Diplomas	0	10	0	4	14
					352